Essays in Corporate Finance

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Abstract

This thesis studies the effects of CEO succession gaps (differences in personal traits between the predecessor and successor) on subsequent firm performance (Chapter 2), and firm future risk-taking (Chapter 3). Market reactions to the revelation of CEO succession gaps among S&P 500 firms spanning the period 1992 to 2016 are finally presented in Chapter 4.

In Chapter 2, I examine the effect of succession-induced gaps in CEO characteristics on subsequent firm performance. Findings in this chapter show that a gap index constructed using differences in CEO attributes resulting from the succession process leads to deteriorating subsequent firm performance when the succession event itself is characterized as disruptive. However, under non-forced succession and when pre-succession performance has been good, a change in characteristics contributes positively to enhancing subsequent firm performance. Analysis of the channels through which value changes are affected suggest that radically different CEOs are more likely to bring with them a higher proportion of co-opted directors, make downsizing and business divesting decisions, and lead firms characterized by higher levels of post-succession strategic instability when there is a mandate for change. Overall, my findings demonstrate that tapping successors who bring in a new set of attributes that are markedly different from those of their predecessors may not always lead to value-enhancement.

In Chapter 3, I investigate the relationship between succession-induced gaps in CEO risk-taking attributes and subsequent firm risks. Findings in this chapter show that the risk-taking gap index constructed using several CEO personal attributes is positively related to subsequent firm risk, especially under forced removal, poor pre-succession firm performance, and external succession. Furthermore, I find that under the aforementioned three circumstances, CEOs with risk-taking gaps increase firm risk through implementing riskier financing policies (higher financial leverage), operating policies (higher operating leverage), investment policies (higher R&D intensity and/ or lower capital expenditure) and diversification strategies (higher Herfindahl-Hirschman Index and/ or less business segments within which the firm operates). Overall, findings in this chapter suggest that CEOs' personal risk-taking attributes in non-economic contexts have serious implications for firms' risk-taking policies and overall risk profile.

Finally, in Chapter 4, I examine the price effect of succession-induced gaps in CEO characteristics. Results show that under forced removals and when pre-succession firm performance has been poor, market participants react favorably to successors with relatively high levels of succession gaps. The magnitude of CARs is 2.64% (4.35%) for

the High Gap group under forced succession (poor pre-performance) over the [-5,+5] event window. For firms tapping successors with relatively low levels of succession gaps under forced removals or successions following poor performance, however, the cumulative abnormal returns are neither economically nor statistically significant during the 11-day event window. This is because instead of affecting effective changes, tapping a successor sharing similar personal traits with his/ her predecessor will simply indicate organizational inertia and may fail to signal management quality improvements. Consistent with my hypothesis, for firms under non-forced successions or when pre-succession performance has been good, the cumulative abnormal returns following the revelation of CEO succession gaps is not statistically different from zero during the [-5,+5] event period for both incoming CEOs with high and low succession gaps, due to the fact that the event itself implies a continuation of firm policy and does not convey any new information to investors.

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Chapter 1 Introduction

1.1. Overview

CEO successions have drawn significant attention in the past few decades. CEOs, unlike any other members of the senior management team in any organization, can impose their idiosyncratic styles on the firms they manage. Therefore, their personal traits and past experiences, which ultimately translate into corporate decisions, will not only shape the fate of their firms, but also the development of whole economies. As such, given the potential for far reaching social and financial implications such changes in top leadership entail, they deserve attention both in theoretical research and in practical operations.

Arguably, any CEO succession entails some risk. Identifying a suitable successor is one of the most important decisions that a company's board can make. Choosing successors with different personal backgrounds and/ or skillsets gives firms a competitive edge by ensuring a flow of fresh ideas and new perspectives to suit the ever-changing needs of today's organisations and society. However, drastic changes in top leadership have the potential to disturb existing work patterns and/ or existing internal and external relationships, which could in turn affect employee morale and cause disruptions within the organisation.

In this thesis, I undertake three empirical studies to investigate how CEO succession gaps affect future firm prospects where succession gaps are measured by the difference in attributes between the predecessor and the successor of the firm. To address the overall impact of changes in CEO characteristics brought about by a succession event, in Chapter 2, I examine whether CEO succession gaps have any impact on subsequent firm performance. Specifically, in this chapter, I investigate whether drastic differences between the predecessor and the successor are beneficial or harmful when the succession event itself is disruptive in nature. In Chapter 3, I adopt a more focused approach to study specific aspects of value-relevant firm attributes, such as firm-risk, that could be altered by an incoming CEO with radically different traits. Therefore, the focus of this chapter is to examine the relation between differences in personal risk-taking attributes of the incoming and outgoing CEOs and post-succession firm risk-taking. In a sense, this chapter implicitly examines whether boards use CEO successions as an opportunity to replace the outgoing CEO with one possessing a markedly different attitude towards risk that is tailored to deliver on the firm's strategic imperatives. Finally, in Chapter 4, I study investors' perceptions on CEO succession gaps by adopting an event study methodology. This chapter seeks to discover whether investors are rational when making decisions and

whether the price effect of CEO succession gaps is in line with firm future accounting performance.

1.2. Past Literature on the Consequences of CEO Successions

Past literature suggests that CEO successions affect subsequent firm policy choices such as strategic reorientation (Weisbach, 1995; Datta & Rajagopalan, 1998; Bigley & Wiersema, 2002; Zhang & Rajagopalan, 2010; Barron et al., 2011; Weng & Lin, 2014; Chiu et al., 2016; Schepker et al., 2017), risk-taking (Elsaid & Ursel, 2011; Cronqvist et al., 2012; Serfling, 2014; Faccio et al., 2016), and internationalisation (Herrmann & Datta, 2002; Lin & Liu, 2012). Boards worldwide seem to use CEO successions as a means to cater to their firms' future development strategies (Westphal & Fredrickson, 2001) by selecting a suitable successor who plays a critical role in ensuring the successful implementation of strategic changes. For example, Serfling (2014) finds evidence that risk averse (seeking) firms generally hire CEOs who are older (younger), and award older (younger) CEOs with fewer (more) incentives in implementing riskier strategies to encourage them to take on less (more) risk.

Nonetheless, the debate on the performance consequences of CEO successions remains largely inconclusive. Post-succession firm policies, performance, and market reactions may be influenced by several factors at different levels (Berns & Klarner, 2017). First, the effect of environmental factors should not be underestimated. Datta et al. (2003) argue that the positive relation between successor openness and post-succession strategic changes is stronger when firms belong to high-discretion industries. Zhang and Rajagopalan (2004) document the positive relation between relay succession and post-succession firm performance to be stronger during an industrial turbulence. Likewise, Karaevli (2007) finds evidence that external successors generate better post-succession firm performance under an environment that has higher capability to allow organizational growth.

Second, organizational contingencies, especially pre-succession firm performance, are of great importance in terms of affecting post-succession firm policies, performance, and market reactions. For instance, Friedman and Singh (1989) find that the market reacts positively when pre-succession performance has been poor and under the condition that the succession events are either board- or CEO-initiated, while a negative market reaction is observed when pre-succession firm performance has been good. Friedman and Saul (1991) argue that poor pre-succession performance is associated with more successor-induced changes (e.g. strategy, structure, personnel, enterprise culture

changes) and will cause disruptions within the organization. Lubatkin et al. (1989) find that investors react favorably to external successors when pre-succession performance has been poor. Similarly, Davidson III et al. (1993) assert that CEO successions close to firm bankruptcy are generally associated with positive abnormal returns, and the positive effect is more pronounced when the successor is an outsider. Karaevli (2007) documents the positive relation between CEO 'outsiderness' and subsequent firm performance to be stronger following poor pre-succession firm performance. In a related study, Karaevli and Zajac (2013) find that outsider successors are more likely to initiate strategic changes when pre-succession performance has been good. Collectively these studies suggest that pre-succession firm performance has a significant impact on the market's reaction to the succession event.

Third, from an agency theory perspective, conflicts of interest are inherent in all contractual arrangements involving delegation (Wright et al., 2002). The relation between CEO characteristics and firm outcomes is based on the notion that shareholders are unable to perfectly monitor CEOs. Consequently, CEOs are capable of pursuing policies which deviate from the sole objective of shareholder wealth maximization (Hutchinson & Gul, 2004). Internal and external monitoring, therefore, will have an impact on post-succession firm prospects. For instance, Dunn (1987) asserts that firms with a larger percentage of outsider directors can better control and monitor management. Booth et al. (2002) state that CEO duality leads to less effective monitoring of the CEO and thus exacerbated agency problems. Lang et al. (2004) argue that more analyst following leads to increased corporate transparency, which can help reduce agency conflicts by inhibiting managerial opportunistic rent extraction. Shleifer and Vishny (1986) claim that compared to retail investors, institutional investors can monitor managers at a relatively lower cost given their expertise and resources, and have greater incentive to do so. Institutional investors are more able to constrain managers' self-serving behaviours (Chung et al., 2002), influence proxy voting (Bhagat et al., 2004), and shape corporate policies (Baysinger et al., 1991; Cox et al., 2004; Desai & Jin, 2011). As a consequence, firms with more institutional holdings tend to perform better (Dharwadkar et al., 2008). When there is inadequate internal/ external monitoring and thus greater CEO discretion, one can expect CEOs personal characteristics to play a more prominent role in shaping firms' strategic choices and overall outcomes (Finkelstein & Hambrick, 1990; Finkelstein & Boyd, 1998; Li & Tang, 2010).

Fourth, board or TMT (top management team) composition and post-succession turnovers make a critical difference. Shen and Cannella (2002), for example, report post-

succession top management team turnover following a contender succession will lead to enhanced subsequent operational performance, while top management team changes following an outsider succession contributes negatively to post-succession firm performance. Barron et al. (2011) documents a positive relation between CEO succession and discontinued operations in a contender succession context, only if other top executives also leave their posts when the CEO steps down. Tian et al. (2011) argues that higher board human and social capital has a strong positive price effect when appointing a CEO successor, and the market prefers internal successors chosen by boards with strong internal social capital above all others. Chen et al. (2015) finds that the probability of being engaged in income-increasing earnings management for interim CEOs is higher than that for non-interim CEOs. Further, effective internal governance such as board's time commitment and financial expertise help mitigate the positive relation between earnings management and interim CEO promotion.

Last but not least, a predecessor's disposition and tenure also seem to matter. Friedman and Singh (1989) argue that predecessor disposition may have an impact on shareholder reactions to CEO successions. Insider promotion coupled with predecessor's retention suggests that the successor would have less discretion in making far-reaching changes compare to if the predecessor had left the firm, and conveys no new information with regards to firm future structural and strategic changes. In sharp contrast, however, for external successions, predecessor's retention in most cases hampers successor's capability to affect strategic changes, and in some rare cases plays a guiding role and helps the successor get through the transition period smoothly. Quigley and Hambrick (2012) conclude that predecessor's retention hampers successor's discretion in affecting post-succession strategic changes and therefore suppresses successor's influence on subsequent firm performance. Using U.S. airline and chemical industries' data spanning the period 1972 to 2010, Karaevli and Zajac (2013) claim that longer predecessor tenure, which serves as proxy for organizational stability, gives outsider successors greater latitude in making far-fetching strategic changes post-succession.

Due to the fact that board/ top management team information, media coverage, analyst following and predecessor disposition data are not readily available, in this paper, I only control for environmental factors (by including year and industry fixed effects),

and distinguish between different organizational contingencies when conducting the empirical analysis.[1]

1.3. Past Literature on the Relation between CEO Personal Traits and Firm Performance

Not only would the event itself and the multilevel contingencies surrounding CEO successions affect post-succession firm prospects, but the 'imprinting' concept (Stinchcombe, 1965) suggests that managers can also impose their own idiosyncratic style on a company. Prior literature suggests that a CEO's past experience and characteristics have significant influence on firm performance by implementing different investment policies, disclosure policies, capital structures, and organizational structures (Malmendier & Nagel, 2011; Malmendier et al., 2011; Benmelech & Frydman, 2015). Some scholars study how CEOs' personal interests and hobbies may affect firm performance. For example, Biggerstaff et al. (2016) look into CEO golfing and find a negative relationship between the level of CEO golfing and firm operating performance, which supports that leisure consumption could serve as a signal of CEO shirking. Cain and McKeon (2016) assert that CEOs with private pilot licenses lead firms with riskier firm policies and elevated firm total risk. In a related study, Sunder et al. (2017) find evidence that CEOs with a private pilot's license produce better innovation outcomes as measured by patents and related citations, and greater innovation efficiency.

Focusing on CEO personal experience, Malmendier and Nagel (2011) find that 'depression babies'[2] rely excessively on internal resources and are more conservative with debt as opposed to equity financing. Moreover, they assert that military CEOs act more aggressively. On the contrary, however, Benmelech and Frydman (2015) suggest that CEO military experience is negatively related to riskier investment and financial policies as indicated by lower capital expenditure/ R&D investments and lower leverage ratio. They also find evidence that firms led by military CEOs are less likely to be involved in fraudulent activities and tend to perform better during an industry downturn. Bernile et al. (2017) argue that CEOs who are exposed to natural disasters with moderate levels of fatalities are inclined to take more risk when making firm policies, while CEOs exposed to deadly natural disasters tend to lead firms with lower risk.

[1] I split the sample into subsamples based on firms' e-index. However, the coefficients on our main variables – CEO succession gap index and CEO risk-taking gap index are not statistically significant. Results are therefore not reported in the thesis.

[2] Individuals who have past experiences of macroeconomic downturns.

By looking into CEO career paths, Custódio et al. (2013) argue that firms value CEOs with general managerial skills: CEOs who have higher General Ability Index scores are associated with higher market pay, and firms generally pay more when they hire generalist CEOs to replace their specialist predecessors, especially when generalist successors are outsiders with the intention to perform highly complex tasks such as major restructuring or M&A. In a related study, Custódio and Metzger (2014) find evidence that CEOs who have financial experience are more likely to be selected by firms that are more mature, and CEOs with financial expertise tend to make more sensible financial decisions. Similarly, in a sample of listed companies in China, Jiang et al. (2013) find that CEOs with financial experience are associated with less real earnings management, and thus are able to provide more reliable financial statements than CEOs who are less financially sophisticated. Gomulya and Boeker (2014) discover a positive relation between firm financial restatements and the probability of hiring successors with past CEO/ turnaround experience and/ or elite educational backgrounds. They argue that the hiring of CEOs with past CEO/ turnaround experience can lead to positive reactions from both financial analysts and market participants. In sharp contrast, Hamori and Koyuncu (2015) claim that successors with past CEO experience are associated with worse post-succession firm performance, especially for those with industry-specific experience or those previously led firms of similar size. Zhu and Shen (2016) assert that outsider CEO's past experience working with demographically diverse boards reduces turbulence at the top and helps enhance firm performance.

With the development of behavioural finance in recent years, many scholars have begun to explore the relationship between CEO psychological traits and firm decisions. For example, Datta et al. (2003) document a positive relationship between successor openness and post-succession strategic changes. Li and Tang (2010) assert that CEO hubris is positively associated with firm risk. They observe this positive relationship to be stronger when CEOs are offered greater managerial discretion. Tang et al. (2015) find evidence of a negative relationship between CEO hubris and corporate social responsibilities, and the negative relationship is moderated when firms are smaller in size, have lower levels of financial slack, or face higher levels of market uncertainty. Malmendier et al. (2011) study the relationship between managerial overconfidence and corporate financing decisions and observe an inverse relationship between overconfidence and external financing (especially equity financing). Galasso and Simcoe (2011) find evidence that overconfident CEOs have higher probability to pursue innovation, especially when industry competition is fierce. Huang et al. (2016) claim that

CEOs who are overconfident tend to shorten overall firm debt maturity by using a higher proportion of short-term debt compared to their non-overconfident counterparts.

1.4. Research Objectives and Contributions

The reason why a CEO predecessor is replaced by a successor with different characteristics and/ or personal backgrounds could be attributed to many distinct, and possibly contrasting, factors. First, the process of CEO succession is one of the board's most important and challenging roles (Biggs, 2004; Berns & Klarner, 2017; Schepker et al., 2018). A board can decide for a relay CEO succession that includes a grooming period for an heir apparent to prepare him/ her to succeed the outgoing CEO (Shen & Cannella Jr, 2003; Zhang & Rajagopalan, 2004). Alternatively, a board can set up a competitive context (e.g. a horse race) among inside managers to identify a successor. A board can also choose between candidates from within or outside the organization, as well as from the same industry or a different industry (Agrawal et al., 2006). The CEO succession planning by the board (or lack of) seems very relevant for shareholders value and firm performance (Shen & Cannella Jr, 2003; McConnell & Qi, 2018; Rivolta, 2018), and is a key determinant for CEO succession gaps, as one would expect CEO succession gaps to be smaller for a firm with a succession plan in place. Further, Zajac and Westphal (1996) argue while CEO predecessors tend to favor similar successors, boards prefer successors who are demographically similar to themselves. A board which is more powerful relative to the CEO predecessor would be more likely to make use of the succession event to change CEO characteristics in the direction of existing board member characteristics. Differences in personal traits between CEO predecessors and successors ('succession gaps' thereafter), therefore, can be seen as a reflection of a firm's succession planning, CEO/ board relative power, and the changes in the profile of board member characteristics.

Second, poor performance, the visibility of a scandal, or the public perception of mismanagement could create opportunities for appointment of CEOs with succession gaps. For instance, Skaggs (2009) finds that after a racial discrimination lawsuit, firms respond to external pressure by becoming disproportionately more likely to promote African-Americans into management positions. In addition, poor pre-succession firm performance will lead to a firm's decreased bargaining power on the CEO labor market. Since a pattern of continuous poor performance is an indication of a mismanaged firm resisting improvements, an underperforming firm could have difficulty attracting viable successors with intensive human and social capital, and may therefore be forced to hire a successor who is younger, with less prior experience, and/ or with lower educational

attainment etc., which eventually leads to a larger CEO succession gap. Therefore, under turbulent conditions, any major changes in the characteristics between the predecessor and the successor could be considered as a reflection of the firm's poor prospect.

This thesis focuses on the value implications of a shift in corporate culture brought about by CEO succession. Specifically, this thesis studies the effect of CEO succession gaps on subsequent firm policy choices, firm post-succession performance, and investor reactions. While the cross-sectional association between CEO characteristics and future firm prospects has drawn great attention in the past few decades, the effect of CEO succession gaps on firm performance and policy choices under different organizational/ event contexts has surprisingly received scant attention. This study aims to fill in such gaps in the literature and provide invaluable insight to inform firm's hiring process.

This thesis contributes to at least two strands of the CEO succession literature. First, the study contributes to this literature by investigating the impact of CEO successions on future firm prospects.[3] Second, this research adds to the literature that examines the influence of CEO personal characteristics and past experience on market reactions, firm subsequent performance, and post-succession policy choices.[4] This thesis also provides a comprehensive analysis on the impact of the change in CEO personal traits and past experiences by combining different aspects rather than just focussing on a single perspective such as gender [see, e.g. Reskin and McBrier (2000); Lee and James (2007); Adams and Funk (2012); Huang and Kisgen (2013); Faccio et al. (2016)], age [see, e.g. Taylor (1975); Hambrick and Mason (1984); Chown (1961); Serfling (2014)], or others [see, e.g. Barker and Mueller (2002); Malmendier and Tate (2005); Giannetti (2011); Custódio and Metzger (2013); Graham et al. (2013); Jiang et al. (2013); Custódio and Metzger (2014); Mishra (2014); Henderson et al. (2017)]. To the best of my knowledge, this is the first study that considers the combined effect of various differences in CEO characteristics between the predecessor and successor simultaneously in a succession context and examines whether such succession gaps have any influence on firm prospects. This is also the first paper that looks into the difference between the

[3] Examples include: Grusky (1963); Dalton and Kesner (1983); Schwartz and Menon (1985); Friedman and Singh (1989); Friedman and Saul (1991); Cannella and Lubatkin (1993); White et al. (1997); Shen and Cannella Jr (2003); Zhang and Rajagopalan (2004); Karaevli (2007); Ballinger and Marcel (2010); Barron et al. (2011); Jalal and Prezas (2012); Gangloff et al. (2016); Schepker et al. (2017)

[4] Examples include: Taylor (1975); Hirshleifer and Thakor (1992); Helgesen (1995); Grable (2000); Reskin and McBrier (2000); Bertrand and Schoar (2003); Wolfers (2006); Chatterjee and Hambrick (2007); Lee and James (2007); Hackbarth (2008); Malmendier and Nagel (2011); Malmendier et al. (2011); Cronqvist et al. (2012); Custódio and Metzger (2013); Graham et al. (2013); Jiang et al. (2013); Custódio and Metzger (2014); Benmelech and Frydman (2015); Hamori and Koyuncu (2015); Kish-Gephart and Tochman Campbell (2015); Cain and McKeon (2016); Cline and Yore (2016); Faccio et al. (2016); King et al. (2016); Zhu and Shen (2016); Bernile et al. (2017); Sunder et al. (2017); Gopalan et al. (2018); Gounopoulos and Pham (2018)

predecessors' and successors' characteristics by differentiating between various types of organizational and/ or event contexts.

Chapter 2 CEO Succession Gap and Firm Performance

2.1. Introduction

CEO succession and the associated implications for firm performance and value has been a topic of considerable interest among academics and practitioners alike; it has been the subject of intense scholarly research in both the finance and management literatures. Boards worldwide spend considerable time and effort ensuring that the succession process identifies and brings in a CEO with the right skill set that will help the firm going forward. Extant research has invested considerable effort in exploring the topic of CEO succession, seeking to underpin CEO succession planning, the reasons behind leadership changes, and whether such changes add value to the enterprise.[5] For example, Zhang and Rajagopalan (2004) shows that the relay succession method allows the heir apparent the opportunity to learn firm and position-specific skills which leads to better post-succession performance, especially when performance leading up to the succession is poor and when firm and/ or industry strategic instability has been high. In a related study, Naveen (2006) finds that a firm's probability of grooming an internal candidate is positively related to firm size and organizational complexity.

I step back from the value-implications of the *process* of succession and focus instead on the *outcome* of succession planning, i.e. on the differences in personal traits of the person who is finally chosen relative to those of the outgoing CEO. In other words, I am interested in the value-implications of a shift in corporate culture brought about by CEO turnover. My interest in studying the impact of a turnover-driven shift in corporate culture is motivated by the recent burgeoning literature that links CEO personal characteristics to firm policy choices and performance.[6] Given that boards scouting for talent look for indicators, any association between personal traits/ experiences and firm performance is likely to provide invaluable insight into hiring the right person to help take the firm forward. There is, however, a significant void in the CEO succession literature which has hitherto limited its attention largely to the cross-sectional association between CEO characteristics and future firm risk and performance. To the best of my knowledge,

[5] See, for example the following: Friedman and Saul (1991); Denis and Denis (1995); Parrino (1997); Huson et al. (2004); Hermalin (2005); Agrawal et al. (2006); Naveen (2006); Karaevli (2007); Cucculelli and Micucci (2008); Ballinger and Marcel (2010); Inderst and Mueller (2010); Campbell et al. (2011); Mobbs and Raheja (2012); Eisfeldt and Kuhnen (2013); Schepker et al. (2017); Gao and Xie (2018); McConnell and Qi (2018); Merz and Weidemann (2018).

[6] There is a large volume of literature investigating how a CEO's past experience and characteristics translate into corporate policy choices. Examples include: CEO military experience and firm risk-taking (Malmendier & Nagel, 2011; Benmelech & Frydman, 2015), CEO early-life experience and professional behaviors (Malmendier & Nagel, 2011; Custódio et al., 2013; Bernile et al., 2017), CEO fitness and firm profitability (Limbach & Sonnenburg, 2014), CEO golfing and firm performance (Biggerstaff et al., 2016), and pilot CEO and innovation (Cain & McKeon, 2016; Sunder et al., 2017).

almost no study has investigated how differences in a broad set of personal traits between the predecessor and successor ('succession gaps' hereafter) could affect firm performance.[7]

However, notwithstanding the commonly held belief that change is good, the consequences of leadership change on firm performance have been reported as largely inconclusive in prior literature. As such, there is reason to believe that the performance of new CEOs with large succession gaps could either help or hurt firm performance. On the one hand, successors with large succession gaps may introduce different management philosophies and succeed, given that a shake-up is necessary to move the firm forward. Examples include the United States' first female Fortune 500 CEO - Washington Post's Katharine Graham and Xerox's Ursula Burns, who in July 2009 became that country's first Fortune 500 African-American female CEO and the first woman to succeed a female predecessor.[8] Both these women serve as long-lasting role models for other top women executives in a predominantly male-dominated business world. Another example is Alan Mulally, who was tapped as CEO of Ford and ended speculation that an airplane expert could not lead an automobile manufacturing company.[9]

On the other hand, the succession process could be fraught with risks of hiring the wrong person who could potentially do more harm than good. This can be particularly deleterious when the outcome of the hiring process cannot easily be reversed. For instance, some new CEOs bring with them their own management team when taking over the top leadership position and make efforts to shake up the, culture which may further exacerbate an already poor level of morale. Some are just not suitable for running a different business, such as Gap's Paul Pressler, the Disney veteran who was ousted after failing to save the floundering business due to his lack of appreciation and creativity of the fashion industry.[10] Johnson & Johnson's former CEO William Perez is another example, who resigned after a short stint at the world's largest shoemaker Nike following disagreements with the firm's founder over management philosophy.

In this paper, I seek to identify the characteristics of succession events when the impact of hiring a CEO with radically different personal traits could benefit the firm and

[7] Very few papers examine how the difference between the predecessor and the successor could affect a firm's risk-taking rather than firm value following a succession. For example, Huang and Kisgen (2013) document that a transition from male to female CEO is associated with a lower rate of asset growth, fewer acquisitions, lower leverage, and reduced debt issuance frequency. Recently, Serfling (2014) and Faccio et al. (2016) find that young-to-old and male-to-female transitions lead to substantially reduced firm risk, respectively.

[8] See online news article: https://www.biography.com/news/first-female-ceos-in-history.

[9] See Bloomberg Businessweek news article: https://www.bloomberg.com/news/articles/2009-03-04/alan-mulally-the-outsider-at-ford.

[10] See Bloomberg Businessweek news article: https://www.bloomberg.com/news/articles/2007-02-25/paul-presslers-fall-from-the-gap.

conditions when such differences could potentially be harmful to firm value. A natural subset of successions potentially more prone to adverse cultural shocks are the ones in firms already reeling under disruptive conditions while the reverse would be true for the complementary subset. These include successions where the outgoing CEO is forced out and when the succession was preceded by poor firm performance. Therefore, given this dichotomy in the possible outcome of the succession process, I add to this literature by examining whether succession-induced gaps in CEO characteristics have any influence on post-succession firm performance.[11]

To test this hypotheses, I use data on a sample of S&P 500 companies spanning the period from 1996 to 2016. I construct an index of CEO characteristics comprising hand-collected data on CEO gender, age, career variety, cultural background, highest education level, and social status ('eliteness') of undergraduate school. Each of these characteristics has already been individually shown in the prior literature to impact on firm performance. To differentiate my study from the others that have considered the impact of a single CEO trait, I construct a gap index by adding one point for every difference between the predecessor and the successor with reference to the aforementioned six attributes. Index values therefore range from zero to six, with zero indicating close alignment between the personal traits/ experiences of the successor and the predecessor, while six suggests that the outgoing and incoming CEOs are totally different along these six dimensions. Future performance of the firm undergoing a succession (i.e., a treatment firm) is measured relative to those that do not experience such an event (i.e., a matched sample). To minimize the effect of any sample selection bias, I employ the propensity score matching methodology, where for every firm experiencing a leadership change (i.e., in the treatment group), five matching firms that did not go through such an event, but share similar pre-succession characteristics, are identified among the matched firms. In other words, the treatment and matched samples have similar pre-succession firm characteristics, with the only difference being that treatment firms have a change in top management.

Main findings in this study can be summarized as follows. For the full sample of CEO successions, I do not find evidence that the succession gap index impacts future firm performance. Shifts in cultural mores can be beneficial or harmful to performance, and in a portfolio, the positive effect in some firms is neutralized by the adverse effect in others.

[11] Hereafter I use the terms 'pre-succession' and 'post-succession' to deal with the period before and after the predecessor is replaced by a new CEO, respectively. These terms are used in several papers, including Friedman and Singh (1989); Friedman and Saul (1991) and Zhang and Rajagopalan (2004).

To rule out this possibility, I next split the sample into firms that were the subject of disruptive changes leading up to the succession event and those that were not. Interestingly, I find that when the succession involves a forced removal of the CEO, or when pre-succession firm performance has been poor, an attempt to further shake up the status quo through a radical shift in the personal traits/ experiences of the CEO leads to subsequently worse firm performance. This outcome is even stronger in the long-term. Consistent with my earlier assertion, the adverse impact of the succession is limited only to the set of successions that are either disruptive or had poor pre-succession performance while firms in the complementary subsample (i.e. non-disruptive successions) showed significant improvement in performance in the years following the succession event. In further tests, I find that successor CEOs who differ considerably from their predecessors tend to co-opt a greater proportion of the board one year after assuming office, have greater discretion to make far-reaching changes regarding downsizing and business divesting, and lead firms characterized by higher levels of post-succession strategic instability.

Overall, I find evidence that appointing a successor with a gap in characteristics is not always value-enhancing. In fact, it can be harmful when the succession event is disruptive in nature. Findings in this study have strong implications for how firms manage the succession process especially when the succession is forced or when a leadership change is preceded by poor firm performance. In particular, my findings suggest that under disruptive circumstances a firm should not appoint a new CEO who wants to stamp his/ her mark on the firm by being different (i.e., by having a high succession gap). Instead, what such firms truly need is a newcomer who possesses in-depth industry knowledge and has a good understanding and appreciation of the corporate culture. Such successors will be less likely to demand drastic changes and will experience less resistance within the organization thereby enhancing rather than disrupting the existing relationships. Such a successor can proactively seek help from incumbent board members and top managers to successfully implement value-adding reforms.

This is the first paper that considers the combined effect of various differences in CEO characteristics between the predecessor and successor simultaneously in a succession context and examines whether such succession gaps have any influence on subsequent firm performance. This is also the first paper that looks into the difference between the predecessors' and successors' characteristics by distinguishing between different types of succession events. This research is associated with the growing body of

literature that examines the importance of a change in leadership on subsequent firm performance and the implications for firms' hiring and firing decisions in the labor market.

2.2. Literature Review and Hypothesis Development

A neoclassical view of the firm is that top management is homogeneous and contributes to the production process at his/ her highest level. According to this view, different managers are considered to be highly fungible to one another (Bertrand & Schoar, 2003). For two businesses specializing in similar industries, possessing similar technologies and with similar situation in today's economy environment, any difference in their management structures will not affect firm choices (Bertrand & Schoar, 2003). An even more extreme assumption is that top managers simply do not matter for the operational activities within a firm. Existing empirical studies typically rely on firm, industry, or market-level characteristics to explain corporate behavior and performance. Yet they largely ignore the role that individual managers could play in shaping these outcomes. While executives may differ in their preferences and levels of risk-aversion or skills, none of this will translate into actual corporate policy if individuals cannot easily influence these policies The Ritual Scapegoating Hypothesis (see, for e.g., Gamson and Scotch (1964)) supports this argument by stating that a succession event serves as a means to provide a target when a decline in a firm's performance is evident. Therefore, rather than actually enhance post-succession performance, a succession event simply gives the public the illusion that a change in leadership could determine and improve the company's fortune. Furthermore, in some circumstances, the hiring of incoming CEOs with succession gaps might be mere tokenism. For instance, a firm's corporate social responsibility may be called into question following a scandal. In response to this, female executives may be installed strategically as a signal that the firm is attempting to become more 'socially responsible'. Skaggs (2009) finds that after a racial discrimination lawsuit, firms respond to external pressure by becoming disproportionately more likely to promote African-Americans into management positions. The visibility of a scandal and the public perception of mismanagement should act as a threat to executive office holders, and thus create opportunities for appointment of CEOs with succession gaps. Under such circumstances, the effect of CEO succession gaps on subsequent firm performance would be inconclusive.

In contrast, others insist succession is adaptive since CEO succession is an error-correcting process serving as a response to sagging profitability. Therefore, a change in leadership is an indication of the firm's effort to improve performance and bring about a

favorable shift in firm-environment (Pfeffer & Salancik, 1978; Allen et al., 1979; Brown, 1982). Other studies, however, argue that succession is a vicious circle whereby poor firm efficiency causes such events to happen in the first place (Grusky, 1963; Cannella & Lubatkin, 1993). Instead of improving efficiency, a change in leadership could in fact trigger more disruptions and further destabilize the firm (Ballinger & Marcel, 2010). As such, the consequences of CEO succession on post-succession firm performance remain an open empirical issue.

From a radical ecological perspective, a succession is an event that indicates a more fundamental underlying structural/ strategic change which is substantial enough to result in a deleterious misalignment with a firm's environment. From a bureaucratic theory point of view, successions could disturb internal stability, disrupt relationships and work patterns within a firm (Friedman & Singh, 1989). CEO succession gaps would be more disruptive than adaptive when the succession event is already disruptive in nature. Under such circumstances, when someone with succession gaps is tapped as CEO, reactions inside the organization could range from suspicion to outrage. Discontent in the management team could set in, especially in those who were fighting for the top executive job themselves. For companies that are bureaucratic, hostile to new ideas, and have a history of resisting external candidates, the incoming CEO with succession gaps is highly likely to be isolated. Besides, it takes time: (1) for the incoming CEO, especially with succession gaps, to learn about how the system works as well as his/ her roles and responsibilities in the new position; and (2) for internal and external stakeholders to get familiar and bond with the new leader (Karaevli, 2007). As such, a loss in firm value is expected because a succession event would not only result in the loss of firm-specific knowledge and human capital, but also due to the difficulty in managing internal and external relationships which make it harder for the successor to garner support from the top management team, build a power-base, and understand how to establish alliances with external forces (e.g. regulatory bodies, suppliers, customers) to achieve performance goals (Greiner et al., 2003; Zhang & Rajagopalan, 2004). This is especially true when the incoming and outgoing CEOs differ widely in characteristics and backgrounds. Miller (1993) argues that a decline in firm integration would be expected following a succession and the incoming CEO's ideas are less likely to be precisely articulated and converted into actions. This is more pronounced when the incoming CEO differs significantly from the previous one.

Succession events serve as a means for breaking with the past regime and management styles, existing structures, as well as cultures, procedures and customs

within an organization. As a consequence, turnaround strategies would be expected (Schepker et al., 2017). From a personnel perspective, if the managerial succession rate is low and the original management team is left in place, it is possible that the existing management may romanticize the past (a strong conservative force influencing peoples' behavior) and may be reluctant to accept radical changes, so that the new CEO would find it difficult to push through his/ her ideas (Schepker et al., 2017). The successor would face an uphill battle to overcome this handicap. In addition, the functional expertise could be quite different from the skill sets and background deemed essential in the traditional promotion channel, leading to negative reactions by employees for incoming CEOs with a succession gap. Company morale would also be adversely affected if radical changes are made by the incoming CEO (which is more likely in the existence of succession gaps). Such drastic changes may upset the perceived probability of company goals being reached, and a perception that employees' efficiency may not improve. The complexities of the company, the sheer number of internal and external vested interests, and the various stakeholders involved could collectively prevent effective strategic changes (Dalton & Kesner, 1983). As a result, worse subsequent firm performance is likely to ensue under such circumstances.

On the other hand, if successors with succession gaps bring with them a group of managers and the rate of executive turnover is high, existing managers might find it hard to accommodate new practices and policies introduced by the incoming CEO. For example, they might feel that opportunities for promotion have become unattractive under the new CEO, where he/ she will be highly likely to make drastic personnel changes in the top executive team, or the promotion channel would change if the leader possesses a skill set that is quite different compared to the traditional criteria (Friedman & Saul, 1991). The vacancies left by departing executives and the uncertainties created as new ones replace them lead to instability, insecurity, and disruptions in relations and work patterns within a firm, which would only exacerbate the existing disruptions.

Prior literature suggests that more disruptions would be expected when: (1) the CEO is forced out, and (2) when firm performance is poor before the succession event. Forced succession reflects the board's intention to engage in drastic organizational change (Friedman & Singh, 1989; Hutzschenreuter et al., 2012). Compared with non-forced successions, a forced removal is more likely to result in more successor-induced changes and therefore more disruptions within the organization (Friedman & Saul, 1991), especially when the successor differs markedly from his/ her predecessor. In addition, it would be unlikely for the predecessor to offer suggestions and assistance for the successor

if the predecessor is forced out. In a similar vein, a 'shock' to the system in the wake of a new leader would be more likely to result in drastic changes following a poor pre-succession performance. As a result, disruptions caused by structural or strategic changes introduced by the incoming CEO will be higher when performance has been poor. The aforementioned two circumstances not only indicate a mandate for change, but also allow the successor enough room and abundant discretion to affect drastic changes. This leads to my first hypothesis:

H1*: CEO succession gaps are disruptive under turbulent conditions (forced removal and when pre-succession firm performance has been poor) and will produce worse subsequent firm performance relative to an otherwise similar firm that does not experience a succession event.*

Conversely, under non-forced successions or when pre-succession financial performance has been good, there is a premium on continuity (Friedman & Singh, 1989; Shen & Cannella, 2002) and hence no obvious need to select a new CEO who is radically different. When company performance improves, traditional hiring and promotion norms that have historically tended to favor successors with similar characteristics would be expected. Zajac and Westphal (1996) developed an organizational demography model where they use age, functional background, and educational background as demographic similarity measures and conclude that boards tend to hire a 'demographically similar' CEO, indicating there is a mutual attraction between firms and employees sharing similar characteristics. Thus, in order to overcome 'glass ceiling' barriers and to attract the attention of director selectors, an incoming CEO with a succession gap when pre-succession firm performance is good may be driven by the needs to acquire more extensive human capital than his/ her counterparts. Besides, the selection process is expected to be well-planned under such conditions, which gives the successor enough time to become familiar with the business and allows firms to leverage firm-specific knowledge and resource bases in determining post-succession organizational success.

Moreover, Miller (1991) asserts that the fit between a firm's structure and strategies with its environmental contingencies is a declining function of CEO tenure. CEOs are known to cling to policies and actions that were previously successful but would not probably be effective under current situations, commonly known as 'competency traps' (Levitt & March, 1988). These 'competency traps' will lead to the incumbent CEO's technical and political obsolescence (Ocasio, 1994). Incoming CEOs with succession gaps, however, would alter the firm's strategies and directions that better suit environmental demands by giving rise to strategic and social novelty and bringing

about diverse social and professional networks. Such transformational strategies are more likely with succession gaps, resulting in strategic actions meant to address organizational challenges and improve performance. Non-forced succession and/ or good pre-succession firm performance provides a company with a stable internal environment that could serve better in capitalizing on environmental opportunities. This leads to my second hypothesis as follows:

H2*: Succession gaps are adaptive under non-forced turnover or when pre-succession performance is good, and will display a positive relationship with firm performance when compared to an otherwise similar firm that does not experience a succession event.*

2.3. Research Design

2.3.1. Data

The starting sample comprises all S&P 500 firms between 1996 and 2016. CEOs' basic information (including name, gender, age, stock ownership, compensation structure, and tenure) was extracted from Compustat's ExecuComp database. Additional demographic information (including career history, educational background, and cultural background) was hand-collected from the S&P Capital IQ database, Bloomberg's online executive profile webpage, NNDB.com, Ancestry, and Wikipedia in the last instance. The classification of succession events into forced and non-forced follows the method described in Parrino (1997),[12] which has been widely adapted in recent CEO succession studies (Huson et al., 2004; Hazarika et al., 2012; Guo & Masulis, 2015; Jenter & Kanaan, 2015). The demographic information on S&P 500 top executives was then merged with Compustat's annual fundamental data and BoardEx's Director and Director Legacy database, with the latter containing information on board size and board independence. Financial services firms and utilities (two-digit SIC Code 60-69 and 49) were dropped from the sample given that firms in these sectors are heavily regulated which may lead to differences in performance outcomes from those of non-regulated companies. I also

[12] Related news articles, whether published in mainstream media or industry-specific journals and magazines, were retrieved through Factiva. The classification takes the following steps: (1) if the press clearly states that the outgoing CEO is forced out, being fired by the board of directors, or the departure is caused by policy differences or pressure imposed by stakeholders, then the succession event is classified as forced. (2) All other departures for CEOs above and including age 64, succession events caused by death or health-related disability and CEO-initiated successions are classified as non-forced. (3) Departures for CEOs under 64 are re-examined further and classified as forced if there are no signs of decease or health-related disability announced by the press, the press does not report an acceptance of another position (either external positions or chairmanship of the company's board) by the outgoing CEO, or the press does not announce the retiring of the predecessor at least six months before the event. (4) If a CEO serves as interim CEO and is replaced later, I classify it as non-forced. (5) Cases classified as forced are reclassified if the reports convincingly state that the succession event has nothing to do with the company's activities.

excluded all cases followed by merger & acquisition or spin-offs, since it is difficult to separate the impact of leadership change from a major organizational restructure on subsequent firm performance after the succession event. After dropping firms without the CEO's full name in the given fiscal year, the final sample contains 7,141 firm-year observations to conduct the empirical analyses.

2.3.2. Variables Construction

The dependent variable, firm performance, is the return on total assets (ROA) over the year following the succession, which is measured as EBITDA over total assets. To construct the primary explanatory variable (a measure for the succession-induced gap in CEO characteristics), I draw upon prior literature that has demonstrated that a CEO's gender, age, career variety, cultural background, highest education level, and social status (eliteness) of undergraduate school affect firm performance. First, as suggested by Adams and Funk (2012), women on boards of publicly listed companies emphasize different values in that female directors are more open to change and less conservative than both male directors and women in the general population. Moreover, female directors are particularly stakeholder-oriented (Adams et al., 2011; Matsa & Miller, 2013). Carol (1982) documents that men tend to address rules, justice, and individual rights when considering moral dilemmas whereas women are more likely to consider the impact of relationships when facing such issues. However, a feminine leadership style characterized by empathy, effective communication, and sharing of information and power that could be effective in mid-level management, may not necessarily work in large companies. Therefore, a change in gender in the top leadership assumes significance with regard to subsequent firm performance. GENDER_GAP is a dummy variable which takes the value one if there is a gender difference between the predecessor and the successor, and zero otherwise.

Second, age difference between the predecessor and successor would greatly affect firm value since younger CEOs emphasize things differently when compared to older managers. Younger CEOs, being more energetic in physical and mental prowess (Child, 1974), are better able to grasp new ideas and learn new behaviors (Chown, 1961). Moreover, younger managers tend to be less risk-averse as they put less emphasis on career and financial security (Barker & Mueller, 2002). Innovative and risky strategies are more likely to be considered by young leaders (Serfling, 2014) leading to higher growth and variability in profitability when compared with their older counterparts in the same industry (Hambrick & Mason, 1984). On the other hand, younger leaders may be more conservative and may not deviate from industry benchmarks as they have greater

reputational and job concerns (Hirshleifer & Thakor, 1992; Zwiebel, 1995; Holmström, 1999). Chevalier and Ellison (1999), and Hong et al. (2000) find evidence that due to a more sensitive termination-performance relationship, younger managers are less inclined to take on unsystematic risk, and generally tend to exhibit higher levels of career concerns. Also, older CEOs may have higher intellectual skills and make corporate policies based on experience, skills, and knowledge gained from the position and/ or advanced education (Sitthipongpanich & Polsiri, 2015). I first calculate the standard deviation of the age distribution of all CEOs in the sample and then create a dummy variable AGE_GAP that takes the value one when there are at least two standard deviations of age difference between the predecessor and the successor, and zero otherwise.[13]

Third, career variety can also impact on firm value since it represents personal biases favoring experimentation and change and is positively related to personality traits such as extraversion and openness to experience (Judge et al., 2002; Judge et al., 2004). A multi-industry career experience could possibly contribute to future feasible strategic and social novelty within a company thereby directing the firm down novel paths. However, replacing an 'industry specialist' with a 'general manager' might not necessarily be beneficial, since drifting from job to job could result in superficial cognitive breadth instead of being proficient in a certain area. In addition, career variety may be positively related to a person's degree of anxiety, avoidance of commitment, and/ or lack of contentment (Mowday & Spencer, 1981; Barrick & Mount, 1996; Judge & Bono, 2001). I, therefore, create a dummy variable CAREER_VARIETY_GAP which takes the value one if either one of the outgoing and the incoming CEOs is a 'general manager' (i.e., had previously worked in another GICS[14] sector and/ or moved across different functional areas), while the other one is an 'industry specialist' (had spent his/ her entire career in one industry and/ or even in just one company), and zero otherwise.

Fourth, CEOs from different ethnicities or cultural backgrounds may see things differently when compared to CEOs born and raised in the U.S., especially regarding knowledge of global markets and the skills to target customers in different cultural settings. Similar to career variety, cultural variety helps to shape managers' cognitive map and conveys a broad cognitive and experiential stock which the CEO could draw upon. In addition, multicultural experience has been shown to be positively associated with creativity (Maddux & Galinsky, 2009; Tadmor et al., 2009). On the other hand, Graham

[13] In my case, there is an age gap if the predecessor is at least 13.84 years older or younger than the successor. My definition of age gap is consistent with Serfling (2014), who defines 'successors are 13 to 40 years younger than incumbents' as 'much younger' and 'successors are 6 to 12 years younger than incumbents' as 'younger'.
[14] Global Industry Classification Standard

et al. (2013) argues that when compared to their US counterparts, non-US CEOs are more conservative with regard to sure losses, are less optimistic, and less willing to take chances. Furthermore, the potential clash between global economic interests and local political interests and a lack of connection to local political parties/ suppliers/ business partners could be challenging for a non-US CEO. I capture this through a dummy variable, CULTURAL_GAP, that equals one if the predecessor or the successor is a US CEO while the other is non-US CEO, and is set equal to zero otherwise.

Finally, given that the last two attributes refer to educational quality, they serve as a component of a person's cognitive ability and signal a person's ability to persevere in challenging intellectual activities. I distinguish high education gap from the 'eliteness' education gap given that the former gap measure emphasizes the difference between the knowledge base and mind-set of the incoming and outgoing CEOs, while the latter measure emphasizes the CEO's social capital. Kish-Gephart and Tochman Campbell (2015) postulate that for CEOs with highly placed parentage, an elite education makes them better connected to people across different industries, gives them more exposure to new business opportunities, and provides easier access to cutting-edge technologies which encourages risk-taking. Their assertion is consistent with Cao et al. (2015) who contend that while both internal and external social capital matters, CEOs' outside connections ('bridging capital') function better than their internal network ('bonding capital') in promoting entrepreneurial innovation and strategic risk-taking. Moreover, wide connections create a safety net for potential failure, allowing CEOs to take on more risks. On the other hand, Antonakis et al. (2017) document that CEOs with high IQ tend to adopt less effective leadership methods, and generally exhibit lower levels of transformational and instrumental leadership skills. Furthermore, CEOs with lower educational qualifications over-compensate through superior performance when compared with their counterparts with more prestigious educational backgrounds. A higher educational profile may make it easier for someone to win a CEO slot due to a stronger social network and the board's perception of a superior education as an appropriate proxy for managerial ability while executives with no advanced degree must work their way up through a hierarchy in a process that does better at weeding out good CEOs from bad ones than any other superior education ever could.

As such, I create two dummy variables associated with CEO educational background: the first, HIGHEST_EDUCATION_GAP, takes the value of one if there is a difference in the level of educational qualifications between the predecessor and the successor. I set 'level' to zero if the CEO does not attend university or college, to one if

the CEO's highest qualification is 'LLB/ Bachelor', to two if the CEO has a 'LLM/ Master/ MBA' degree and to three if he/ she has achieved a 'Juris Doctorate/ PhD' qualification. Any difference in the educational level between the incoming and outgoing CEO is regarded as a 'highest education gap'. The second dummy, ELITE_EDUCATION_GAP, takes the value of one if either the predecessor's or the successor's undergraduate school is in the top-20 list of the Best National/ Global University rankings as defined by U.S. News & World Report's 2016 rankings, while the other's undergraduate school does not feature on the list.[15]

Next, I construct a succession gap index (GAP_INDEX) to illustrate the aggregate measure of difference between the predecessor and successor by adding one point for every difference between the predecessor and the successor with reference to the aforementioned six attributes. The maximum value for the index is six if the outgoing and incoming CEOs are different in every one of the six attributes, and zero if the outgoing and incoming CEOs share similar characteristics in all those traits. The GAP_INDEX in my sample has a mean value of 1.817 and a median value of 2.[16]

To examine the first and second hypotheses, I construct two additional independent variables. The first is a dummy variable, FORCED, that equals one if the predecessor was forced out (board-initiated succession) and zero otherwise (customary, CEO-initiated, or death/ health-related disability-initiated succession). A second variable, POOR_PRE_PERF, is a dummy that takes the value of one if the firm's pre-succession performance is lower than its industry median in the given fiscal year and zero otherwise, with industry defined at the two-digit SIC code. Of the 659 succession events, 179 are forced turnovers (27.2%)[17] and 309 are turnovers characterized by pre-succession firm performance that was below the industry median (46.9%). A negative coefficient on GAP_INDEX for forced succession and when performance leading up to the succession

[15] I use the latest U.S. News & World Report university rankings, as top-20 national/ global university rankings largely remain stable over time. (e.g., U.S. News National University Rankings spanning the period 2008–2015 could be found at the following URL: http://publicuniversityhonors.com/2015/06/13/u-s-news-national-university-rankings-2008-present/).

[16] Among all of the 659 succession events, 32 cases involve a gender gap (23 cases are female replacing male and 9 are male replacing female), 193 successions result in an age gap (185 cases involve younger successors replacing older predecessors and 9 cases where older successors replace younger predecessors), 275 cases involve a career variety gap (146 cases are generalists replacing industry specialists and 129 cases are industry specialists replacing generalists), 106 are characterized as successions that lead to significant cultural gap (63 successors born or raised outside the U.S. replacing native Americans and 43 American CEOs replacing non-Americans), in 355 successions there was a significant education gap (193 successors with higher educational qualification replacing predecessors with lower qualification and 162 cases being the other way around), 178 successions are characterized by a significant shift in the 'eliteness' of the CEOs' undergraduate education (78 cases are successors with elite undergraduate degree replacing those without, and 100 cases where successors without elite undergraduate degree replace those with elite undergraduate degree).

[17] The forced turnover ratio is close to that reported by Zhang and Rajagopalan (2004) for all COMPUSTAT-listed manufacturing firms from 1993-1998 and Guo and Masulis (2015) for all listed firms in RiskMetrics database spanning the period 1996-2010.

is poor is expected, and a positive coefficient on GAP_INDEX for non-forced turnover and those with good pre-succession performance is expected, in accordance to my first and second hypotheses, respectively.

I control for firm characteristics (Himmelberg et al., 1999; Frank & Goyal, 2009), corporate governance mechanism (Coles et al., 2006; Guest, 2009), and CEO characteristics (Boyd, 1995; Fahlenbrach, 2009; Fahlenbrach & Stulz, 2009), since these variables have been shown to influence firm performance. For firm characteristics, eight variables are included: past firm performance (PRE_PERFORMANCE); the number of years since the firm was established (FIRM_AGE); leverage (LEV); firm size (SIZE); market-to-book ratio (MTB); capital expenditure ratio (CAPEX); free cash flow ratio (FCF); and fixed tangible assets (TANG). Corporate governance-related control variables include board size (BOARD_SIZE) and board independence (BOARD_INDEPENDENCE). Control variables that capture CEO characteristics include the percentage of outstanding shares owned by the CEO (OWNERSHIP), the proportion of total annual CEO compensation that derives from option grants and stocks (EQUITY_INTENSITY), CEO-chairman indicator (DUALITY), founder-CEO indicator (FOUNDER), and family-member-CEO indicator (FAMILY_MEMBER). All control variables are winsorized at the top and bottom 1% level to minimize the influence of potential outliers. The definitions of control variables are explained in Appendix A.

2.3.3. Methodology – Propensity Score Matching (PSM)

By comparing the outcome of firms that experienced succession with those that did not, I aim to isolate the actual effect of the succession on firm performance. This approach, however, can only work in a scenario where firms that go through a succession are randomly assigned, but this is not the case in my sample. Firms, for example, with worse past performance are more likely to replace their CEOs. Should the trend continue, 'treated' firms (firms that experienced CEO successions) would be expected to produce worse subsequent performance than their counterparts, on average, regardless of whether they actually go through a change in their top executive or not. Under such circumstances, the estimated coefficient would be incorrect due to potential sample selection bias, which arises when the key determinants of why a firm goes through a succession are also related to firm performance.

To address this potential sample selection bias, my identification strategy relies on the propensity score matching (PSM) method. I follow Malmendier and Tate (2009) by matching treated and untreated observations based on the estimated probability of

being treated where I match each firm that goes through a succession event with firms possessing otherwise similar characteristics but did not experience CEO turnover. Instead of matching one to one, I match each treatment firm to five nearest matched firms,[18] so that the coefficient will be less sensitive to the matching criteria chosen. Once matches are made, the impact is then calculated by comparing the means of outcomes across treated observations and their matched pairs.

Guided by economic theory and prior literature (Brown, 1982; Friedman & Singh, 1989; Coles et al., 2014), several variables are used as matching criteria. This includes the conditions of the firm during pre-succession periods, such as performance, firm age, firm size, leverage, market-to-book ratio, tangibility, board size, board independence, industry sector, and fiscal year dummies. In addition, I include the characteristics of the predecessor, such as age, ownership, and CEO duality indicator. I also require that no leadership change occurs in the match firms within one year after the transition year. The PSM method then uses a logit model to estimate matching firms as a function of the aforementioned matching criteria.

The following regression model was estimated for subsample analysis:

$$PERFORMANCE_{i,t+1} = \alpha + \beta_1 GAP\_INDEX_{i,t} + \sum_{n=1}^{N} \gamma_n FIRM_{n,i,t} + \sum_{k=1}^{K} \vartheta_k GOVERNANCE_{k,i,t} + \sum_{r=1}^{R} \delta_r CEO_{r,i,t} + \epsilon_{i,t}$$

where PERFORMANCE is the difference in subsequent performance between the treatment firm and the average performance of the matching group *i* in year *t+1*, GAP_INDEX is succession gap index for firm *i* in year *t*, FIRM is a vector of *N* firm characteristics control variables, GOVERNANCE is a vector of *K* corporate governance control variables, and CEO is a vector of *R* CEO characteristics control variables.

Three separate models with different forms of fixed effects were estimated. The first includes two-digit SIC industry and year fixed effects to control for unobserved heterogeneity across different industries and firms. The second model incorporates industry fixed effects, year fixed effects, and the interactions between industry dummies and year dummies, as industry-specific fixed effects during a particular year could be the driving force behind the negative relationship between the interaction terms and subsequent firm performance. Including the interaction term makes the gap index and the measures of subsequent firm performance comparable across industries in any given year. The third model controls for year and firm-fixed effects due to a possibility that firms

[18] Due to the fact that the propensity score matching is very sensitive to the matching dimensions, I repeat the matching process by using the two closest firms and the three closest firms, respectively. The overall results are largely consistent with the reported findings using five closest firms.

under crisis may favor successors with gaps or candidates with high levels of succession gaps might ultimately decide to take the leadership position. Thus, the negative relationship between the CEO gap measure and subsequent firm performance could be driven by time-invariant firm characteristics.

2.4. Empirical Results

2.4.1. Summary Statistics and Correlations

Table 2.1 displays the descriptive statistics of firm characteristics as well as CEO characteristics that can potentially influence firm performance after the succession. As shown in columns 1 to 3, subsequent performance of firms that experienced a succession do not differ much from those that did not go through such an event. Compared to their counterparts, treatment firms (i.e., succession firms) are more established as indicated by an older firm age, and have fewer growth opportunities as suggested by a lower market-to-book ratio. For firms belonging to the succession group, incumbent CEOs have lower ownership but enjoy a higher proportion of equity-based compensation, suggesting better incentive alignment (Mehran, 1995). In addition, incoming CEOs in the succession group are less likely to be both the CEO and chairman of the board when compared to their counterparts, suggesting firms do make an effort to reduce potential agency problems and strengthen internal control (Westphal & Zajac, 1995). I also find evidence that firms led by founder- or family member-CEOs are less likely to experience a succession.

However, when comparing firm-year descriptive statistics of forced and non-forced succession firms (shown in columns 4 to 6), it is clear that firms experiencing forced succession are generally less profitable as evidenced by a lower ROA over the year preceding the succession. Such firms tend to pursue riskier financial but conservative investment policies as suggested by a higher leverage ratio and lower capital expenditure (Coles et al., 2006). Moreover, firms are more likely to hire an outsider to introduce strategic changes when the removals are board-initiated or the outgoing CEO departed due to pressure from shareholders. Results in columns 7 to 9 compare firms that have performed poorly in the past with those with financial performance above the industry average. These results show that poorly performing firms are larger in size and possess lower growth opportunities. Moreover, poorly performing firms are associated with higher leverage which confirms the assertion in March and Shapira (1987) that riskier policies are more likely to be introduced when the business falls into a decline than when firms are doing well.

< Insert Table 2.1 here >

A correlations matrix of the key independent variables shows that most of the independent variables have correlation coefficients less than 0.15. Among all the variables, only the estimated coefficients between pre-succession firm performance and market-to-book ratio, and tangibility and capital expenditure have a correlation greater than 0.5. I further use a variance inflation factor (VIF) to evaluate multicollinearity which has an advantage over pairwise correlations as it simultaneously looks at the correlation between one variable and the rest of the independent variables used in the regression models. The highest value of VIF for each independent variable is 2.70, suggesting that multicollinearity is not a major concern.[19]

2.4.2. Gap Index and Subsequent Firm Performance

Table 2.2 presents the results from PSM regression examining the effect of succession-induced gaps on subsequent firm performance. For the full sample, I do not find any meaningful relationship between succession gaps across all three regression models. These results are not surprising given that the consequence of succession on firm performance has been reported as largely inconclusive in past literature, stating that shifts in cultural mores can be both beneficial as well as harmful to performance with the positive effect in some firms being neutralized by the adverse effect of the cultural shift in others.

Most of the control variables in the baseline model display expected signs. For example, PRE_PERFORMANCE contributes negatively to subsequent performance at less than the 1% level of significance across all models. Indeed, prior performance indicates how efficiently a firm has used its resources. Good pre-succession performance suggests that the firm is able to actively seize environmental opportunities and overcome environmental constraints; hence a change in leadership is not desired. Consistent with this, results in this study show that firms with good pre-succession performance experience a performance decline following a CEO turnover relative to an otherwise similar firm that has not seen a change in leadership.

Results also show that effective monitoring would be essential in adding value to subsequent firm performance in succession contexts. As shown in Table 2.2, LEV is positively related to subsequent firm performance at least at the 5% level of significance, which is consistent with the assertion in Jensen (1986) that pre-commitment of interest payments and the risk of potential bankruptcy due to debt financing could discipline

[19] For brevity, I do not report the correlation matrix in this dissertation.

managers from shirking, appropriating perquisites, and/ or investing in value-destroying projects. Also, I find high market-to-book ratio to be negatively related with subsequent firm performance following a leadership change at least at the 5% statistical significance level across all three regression models, which confirms Boone et al. (2007)'s argument that firms with higher growth potential have high monitoring costs. I find that founder-CEOs are associated with negative subsequent firm performance in model 1 at the 10% level. Adams et al. (2009) assert that founders are less likely to retain the CEO title when firm performance has been good. As such, founders are more likely to reassume office when the firm is experiencing a crisis. Furthermore, founder-CEOs concentrate more on employees and creditors than on shareholders, and are generally more reluctant to bring about strategic changes than their counterparts (Mullins & Schoar, 2016). Thus, the reengagement of founder-CEOs might not be ideal and could lead to subsequent performance declines in a succession context.

Consistent with the monitoring role of incentive compensation, I find positive coefficients for both OWNERSHIP and EQUITY_INTENSITY in the firm-year fixed effect model. Aligning CEOs' compensation to firm performance by giving them higher share ownership or making their compensation more equity-based could motivate top executives to make value-maximizing decisions.

< Insert Table 2.2 here >

Given the commonly held belief that change is good, findings on the lack of association between change in CEO characteristics and firm performance for the full-sample are intriguing. There is, however, the possibility that the value-implications of a radical shift in CEO characteristics differ across subsamples which get annulled in a portfolio setting. To test for this possibility, I next analyse the results by splitting the sample into firms that were the subject of disruptive changes leading up to the succession event and those that were not. Table 2.3 illustrates the effect of CEO gap index on subsequent firm performance when the succession is forced relative to firms that experienced a non-forced succession. Once again three separate regression models were estimated: models 1 and 4 controlling for year and industry fixed effects; models 2 and 5 controlling for year, industry, and year-industry fixed effects; and models 3 and 6 controlling for year and firm fixed effects. In sharp contrast to the full-sample results presented in Table 2.2, results for forced removal strongly suggest that the larger the difference in attributes between the outgoing and incoming CEOs, the worse the firm's subsequent financial performance when compared to an otherwise similar firm that does not experience a succession event.

On the other hand, when the succession event is routine, CEO-initiated, or death/ health-related or disability-initiated, a radical shift in the personal traits/ experiences of the predecessor and the successor leads to better subsequent firm performance. These results are consistent with my first and second hypotheses and underscore the importance of avoiding a portfolio approach to analysis where countervailing effects can wash out otherwise strong economic impacts. Unlike non-forced removals, forced successions only allow a very limited time for the incoming CEO to conduct on-the-job training, digest the essence of the business, and bond with internal and external stakeholders. Besides, under forced succession, more successor-induced structural and strategic changes would be expected, which could disturb internal stability and disrupt relations and work patterns within a firm. Moreover, a company's morale will go down when the incoming CEO's characteristics and functional expertise differ widely from the skill sets and backgrounds that are deemed very important in the traditional promotion channel.

As discussed earlier, subsequent firm performance depends largely on the ease of monitoring and CEO's incentive alignment in succession contexts. Firms characterized by a higher total debt ratio and lower growth opportunities are easier to monitor, and therefore produce better firm financial performance following a leadership change. The use of equity-based compensation on the successor again proves to be essential in adding firm value.

< Insert Table 2.3 here >

CEO turnover following poor performance is another set of successions that could potentially destabilize the top management and internal order. Table 2.4 presents the sub-sample results (i.e. Poor and Good Pre-Performance) from PSM regression of CEO succession-induced gaps on subsequent firm performance. Again, I adopt year and industry fixed effects for models 1 and 4; year, industry, and year-industry fixed effects for models 2 and 5; and year and firm fixed effects for models 3 and 6. Consistent with my hypotheses, I find that succession gaps lead to deteriorating subsequent firm performance when pre-succession firm performance is poor. In sharp contrast, a drastic difference in the personal traits/ past experience between the outgoing and incoming CEOs positively impacts on performance in firms that previously did well. Similar to forced removals, poor past performance indicates a need for a change in mission, vision, and strategy. Radically different successors are given the motivation and latitude of action to introduce drastic personnel and structural changes, which lead to more disruptions within the organization. Unlike when pre-succession performance is good, an incoming CEO with succession gaps under poor past performance may not be driven to acquire

more extensive human capital than their counterparts in order to overcome 'glass ceiling' barriers and to attract the attention of director selectors. The instability or scandal not only provides a chance for firms to break away from the traditional recruiting process and end up tapping a successor with a large characteristic-gap which might be mere tokenism, but for acceptable candidates with high competence the top leadership position might actually be less desirable. This allows those who are less capable to move ahead in the queue to fill these vacancies.[20]

< Insert Table 2.4 here >

I acknowledge that by aggregating all differences together, I may ignore both the importance of each gap measure and the direction of the effect on subsequent firm performance, which may result in insignificant result as shown in table 2.2. Appendix D summarises the effect of each CEO attribute used in the gap index as a function of the relation being tested for full-sample and sub-sample analysis. Results in Panel A show that for the full-sample analysis, Gender Gap and Cultural Gap contributes positively to subsequent firm performance with a coefficient of 0.063 (at the 5% statistical significance level) and 0.030 (at the 5% statistical significance level), respectively. In sharp contrast, however, I find Highest Education Gap and Elite Education Gap to be negatively related to subsequent firm performance, with a coefficient of -0.021 (at the 5% significance level) and -0.049 (at the 1% significance level), respectively. Nonetheless, as shown in Panel B, C, D, and E, most of the individual gap measures move in the same direction as the aggregate succession gap index when the sample is split into subsamples based on the nature of the succession events.

2.4.3. Robustness Tests

2.4.3.1. CEO Gap index and subsequent long-term firm performance

I next conduct a series of robustness tests to ensure stability of the primary results reported so far. First, all of the results presented relate the succession-gap measure to firm performance over the one-year period subsequent to the turnover. However, successor-induced structural and strategic changes can take longer than a year and consequently their impact on firm value and financial performance may not show when performance is

[20] As total pay may be a relevant motivator for succession outcome, I repeat my empirical analysis by adding an additional control variable, TOTAL_PAY, which is defined as the natural logarithm of CEO's total annual compensation. As shown in Appendix C, the coefficients on the additional control variable TOTAL_PAY are neither economically nor statistically significant across all models. Overall, PSM results reported in Table 2.2, 2.3 and 2.4 hold and remain robust after accounting for CEO total pay.

measured over the twelve months immediately post succession. I, therefore, re-estimate all the regression models using a three-year pre- and post-succession time frame (Cucculelli & Micucci, 2008) and present the results in Table 2.5. Panel A of this table reports estimates of the impact of gap index on long-term post-succession firm performance, Panel B reports results for sub-sample of forced/ non-forced successions and Panel C reports results for sub-samples when the pre-succession performance is good/ poor. Note that firms now belong to the poor pre-succession group if their three-year average pre-succession firm performance is lower than industry median in the given fiscal year in the full sample and zero otherwise. As shown in Table 2.5, results are largely consistent with findings reported earlier. Consistent with the expectation that changes can take time before results are visible, the coefficients on the GAP_INDEX become more significant both in economic and statistical significance compared to those when performance is measured over one year only. These results provide further support for my first and second hypotheses.

< Insert Table 2.5 here >

2.4.3.2. Alternative performance measures

To test for the robustness of my findings with respect to the primary measure of performance, I next use the following alternative measures of performance: (1) ROA redefined as EBIT scaled by total assets (as opposed to EBITDA over total assets in the baseline tests); and (2) return on equity (ROE) measured as net income divided by total equity. Results using these alternative performance measures over the one-year and three-year post-succession windows are reported in Table 2.6. Columns 1 and 3 report the estimates of treatment effect on performance over a one-year post-succession window while Columns 2 and 4 report similar results but over a three-year post-succession period. Results using these alternative performance measures are largely consistent with those obtained using ROA, my primary measure of performance, albeit being marginally weaker in statistical significance. For example, while the importance of succession gaps under forced turnover in explaining firm performance does not show up in the one year period following the succession event when using ROE as the performance measure, the negative relationship becomes economically and statistically significant for the longer three-year window.

<Insert Table 2.6 here>

2.4.3.3. Endogeneity

A limitation in the propensity matching approach is that even after accounting for selection bias by appropriately comparing treatment and matched firms, there is a potential endogeneity issue concerning a firm's decision to choose a successor with different personal and professional backgrounds. As mentioned earlier, a crisis could give opportunities for firms to break away from the current enterprise habitus and alter hiring and promotion practices (Reskin & McBrier, 2000; Khurana, 2004), thereby creating opportunities for appointments of CEOs with succession gaps. If such a trend continues, the subsequent performance of firms with high succession gaps will be lower than firms with no succession gaps on average. Under such circumstances the PSM estimator will produce biased estimates.

A mean-comparison test of pre-succession firm characteristics between firms with high relative to low succession gaps (as shown in Appendix B) demonstrates that the differences in pre-succession firm age, firm size, tangibility, and CEO duality between these two groups are statistically significant. Firms belonging to the high-gap group are generally younger in age and smaller in size, and that older and more established firms are more bureaucratic and resistant to change (Hannan & Freeman, 1984). Besides, firms belonging to the high-gap group have a lower predecessor duality ratio than their low-gap counterparts although the difference is negligible in scale. Other variables, especially pre-succession firm performance, do not have a significant impact on the successor-selection process. Although firms with both high and low levels of succession gaps share similar pre-succession performance trends, the existence of potential endogeneity problems would still hamper the interpretation of results from the PSM regressions.

To address such concerns, I adopt an instrumental variable approach using the gap index between potential candidates and the outgoing CEO as the main instrument. To implement this, I calculate the average value for each of the six components of the Succession Gap Index of other CEOs in the same industry (defined by two-digit SIC code), state, and fiscal year, as they are potential candidates for the CEO position. I then calculate a Gap Index between the departing CEO and industry average characteristics (termed as Candidate Gap Index). The assumption here is that such a Candidate Gap Index will be related to the realized Succession Gap Index, while at the same time be reasonably exogenous to the firm's performance.

I first regress the gap index on the previously used set of control variables and the instrument: Candidate Gap Index (CANDIDATE_GAP). Next, I use the instrumented GAP_INDEX (i.e., the fitted value of the succession gap index from the first-stage regression for firm *i* in year *t*) in the second-stage regressions and then test both my first

and second hypotheses by using this two-stage least squares (2SLS) regression. In Table 2.7, the dependent variable for the second stage regressions in panel A is peer-adjusted subsequent firm performance (i.e., the difference in subsequent performance between the treatment firm and the average subsequent performance of the matching group of each firm *i* in year *t+1*) and in panel B is peer-adjusted subsequent long-term performance. I find that the regression coefficients of the CANDIDATE_GAP variable in the first-stage OLS regression are positive and statistically significant at the 1% level, suggesting that the Candidate Gap Index has a strong explanatory power on the incoming CEO's level of succession gaps. As shown in Table 2.7, the GAP_INDEX consistently leads to worse subsequent performance when the predecessor is forced out or when pre-succession performance has been poor. In contrast, when pre-succession performance has been good, successors with drastically different personal traits and past experience from their predecessors lead to enhanced subsequent performance. However, there is not much evidence on GAP_INDEX affecting subsequent firm performance when firms experience non-forced successions. Overall, PSM results reported earlier hold and remain robust after accounting for potential endogeneity issue.

< *Insert Table 2.7 here* >

2.4.4. Further Tests

2.4.4.1. Gap Index and Post-Succession Board Co-option

In this section, I examine some channels through which gaps in CEO traits may lead to worse subsequent firm performance. An often touted reason for poor post succession performance is board co-option that has the potential to significantly weaken governance quality (see, for e.g., Coles et al. (2014)). Given this as an obvious channel through which an incoming CEO could impact firm performance, I examine whether the destructive impact of co-option is systematically related to the gap in personal traits of the incoming and outgoing CEOs. To test this, I employ in my models a dependent variable, CO_OPTED, denotes the proportion of board members appointed within a year after the predecessor CEO is replaced.[21] In my further tests, I am interested in examining the channels through which GAP_INDEX leads to worsening firm performance between firms with high succession gaps (HIGH_GAP = 1) versus firms with low succession gaps

[21] I gather board co-option data from Lalitha Naveen's personal website: https://sites.temple.edu/lnaveen/data/. The original co-option variable ranges from zero to one. It remains at a constant level/ increase within a CEO's tenure, and starts from zero again when the next person assumes office. I changed the original co-option variable from accumulated proportion of board changes to the annual proportion of board changes to make the value comparable across both succession and non-succession firms.

(HIGH_GAP = 0). My main independent variable, HIGH_GAP, is a dummy variable that takes the value of one if the firm has a GAP_INDEX greater than the sample mean of 1.82 and zero otherwise. Guided by Linck et al. (2008) among others, control variables include firm size (SIZE), leverage (LEV), number of business segments (NUM_SEGMENTS), firm age (FIRM_AGE), market-to-book ratio (MTB), research and development expense (RND), annualized standard deviation of monthly stock return over the year (STKVOL), firm profitability (ROA), free cash flow ratio (FCF), board size (BOARDSIZE), successor origin (OUTSIDER), CEO share ownership (OWNERSHIP), CEO age (AGE), and CEO duality (DUALITY). I also control for firm and year fixed effects. Results presented in Table 2.8 show that higher levels of GAP_INDEX and/ or HIGH_GAP contribute significantly to a higher fraction of co-opted directors one year after the succession event. Results show that the incoming CEOs with larger gaps would have more discretion in shuffling the firms' personnel and bring with them newcomers from their previous contacts (Friedman & Saul, 1991). Not only can those CEOs exert influence on the management shake-up, they are also able to affect the selection of board members, even independent directors (Coles et al., 2014). Such a practice not only intensifies disruptions within the organization (Shen & Cannella, 2002), but also undermines board independence if board co-option increases in the wake of a new leader (Coles et al., 2014).

< Insert Table 2.8 here >

2.4.4.2. Gap Index and Structural Change

Next, I examine the relationship between gap index and successor-induced structural changes following Denis and Serrano (1996) approach in determining firm structural change after a leadership change. The first dependent variable, STRUCTURE_CHANGE, takes the value of one if an asset sale is announced and a firm's book value of total assets is reduced by more than 10% during the two-year period after the CEO is replaced and zero otherwise. I also test whether there is a difference in post-succession employee reduction for the high-gap group and their low-gap counterparts. This is captured through a dummy variable, EMPLOYEE_REDUCTION which is set equal to one if a firm's number of employees is reduced by more than 10% during the two-year period after the CEO is replaced and zero otherwise.

I estimate a logit regression by controlling for successor origin (OUTSIDER), firms' industry-adjusted debt capacity (LOW_DEBT_CAPACITY), interest coverage (INTEREST_COVERAGE), dividend coverage (DIV_COVERAGE), dividend cut

indicator (DIV_CUT), return on assets (ROA), size (SIZE), leverage (LEV), market-to-book ratio (MTB), number of business segments (NUM_SEGMENTS), and sales-based Herfindahl Index (HERF). These variables have been documented in the prior literature as determinants of asset sales (Kruse, 2002; Yang, 2008). I further control for the median industry sales growth rate within which the firm operates (IND_SALES_GROWTH) (Kruse, 2002).

Table 2.9 illustrates the effect of gap index on subsequent structural changes after the CEO is replaced. Panel A reports the results when STRUCTURE_CHANGE is the dependent variable, and Panel B reports the results when EMPLOYEE_REDUCTION is used as the dependent variable. As shown in Table 2.9, the HIGH_GAP variable does not have any explanatory power on post-succession structural change measures. However, the positive and significant coefficients on the interactions between FORCED and HIGH_GAP as well as POOR_PRE_PERF and HIGH_GAP in columns 2 and 4 indicate that successors with high gap levels have a higher probability of making post-succession downsizing decisions under forced successions and/ or when pre-succession performance has been poor. The findings confirm Lang et al. (1995) assertion that poorly performing firms are more likely to make the decision to downsize and divest, since the proceeds from selling existing assets could be used as a cheap way of financing. They argue that managers would be reluctant to divest the firm's business if they have a vested interest in the firm. In addition, successors, especially those with high succession gaps, might sell some of the firm's business just to make their mark on the firm so that it is different when there is a mandate for change (i.e., under the circumstances of forced successions and poor prior firm performance), even if such moves are value-destructive (Miller, 1993). In such cases, restructuring is conducted to meet the incoming CEO's personal ambitions rather than enterprise interests, and therefore would be detrimental to subsequent firm performance.

< Insert Table 2.9 here >

2.4.4.3. Gap Index and Strategic Instability

Finally, I examine the relationship between gap index and post-succession firm strategic instability by following Finkelstein and Hambrick (1990) method in constructing the Strategic Instability (SI) variable by using only four individual strategic dimensions

given missing data in advertising intensity and R&D intensity.[22] The individual strategic measures used are as follows: (1) plant and equipment newness (net PPE/gross PPE), (2) nonproduction overhead (selling, general and administrative expenses/sales), (3) inventory level (inventories/sales), and (4) financial leverage (total debt/common equity). I first compute the pre-succession three-year variance $\frac{\sum(t_i-T)^2}{(n-1)}$ for each of the aforementioned strategic dimensions. I then standardize the variance for each dimension by industry at the four-digit SIC code level, using data points from sample firms only. Finally, the strategic instability measure is generated by summing the four standardized variance scores. Guided by Finkelstein and Hambrick (1990) and others, I control for pre-succession firm strategic instability (PRE_SI), size (SIZE), firm age (FIRM_AGE), market-to-book ratio (MTB), free cash flow (FCF), return on assets (ROA), board size (BOARD_SIZE), board independence (BOARD_IND), CEO age (AGE), CEO share ownership (OWNERSHIP), CEO duality (DUALITY) and CEO origin (OUTSIDER). Firm and year fixed effects were also included.

As shown in Table 2.10, the HIGH_GAP variable does not have explanatory power on post-succession firm strategic instability. However, the interaction terms between HIGH_GAP and FORCED and HIGH_GAP and POOR_PRE_PERF significantly contribute to a higher level of firm strategic instability one year after the succession event. These empirical results suggest that under forced succession and/ or when pre-succession firm performance has been poor, successors with high gaps are more likely to make decisions that would lead to an elevated level of subsequent firm strategic instability. Prior literature shows that the effect of strategic change on firm performance is the net effect of both its adaptive (Hambrick & Schecter, 1983; Haveman, 1992; Zajac & Kraatz, 1993) and disruptive side (Jauch et al., 1980; Singh et al., 1986; Kor & Leblebici, 2005). Zhang and Rajagopalan (2010) assert that firm performance increases when the level of strategic change rises from low to moderate but decreases when the level of strategic change increases from moderate to high. Compared to successors with low succession gaps, those with high gaps can amplify either the adaptive or disruptive effect of strategic change when the succession event itself signals underlying strategic and structural changes. As the ever-changing business environment makes inaction the riskiest strategy (Farjoun, 2007) and demands change within an organization, a moderate level of strategic change that a successor with high gaps could bring in is highly

[22] Koh and Reeb (2015) show that the percentage of missing R&D firms which file and receive patents is 14 times greater than firms with zero R&D, and missing R&D firms are more likely to report R&D after an exogenous auditor change. As such, it would be inappropriate when conducting the empirical analysis to treat missing value as zero.

appreciated under non-forced successions and/ or when past performance has been good. However, successors are more motivated to make drastic changes under forced succession and/ or when pre-succession firm performance has been poor (Friedman & Singh, 1989; Hutzschenreuter et al., 2012; Schepker et al., 2017). This scenario leads to greater organizational disturbance when successors with gaps have limited understanding of their firms' external conditions and internal capabilities. The changes induced by successors with high gaps, which are built on new competencies rather than relying on existing competencies, will lead to worse immediate performance and a greater chance of business failure (Haveman, 1992; Sastry, 1997).

< *Insert Table 2.10 here* >

2.5. Conclusions

Value-implications of a shift in corporate culture brought about by CEO turnover are examined in this study. I employ an evaluation technique that examines the potential interactions between the effect of both the succession event itself and the shift in CEO characteristics it engenders. By employing a propensity score matching approach, the partial effect of succession gaps on the performance of firms experiencing a CEO succession could be analysed relative to their matched peers.

Focusing on the nature of the succession event and the differences between the personal traits/ experiences of the outgoing and incoming CEOs in large S&P 500 companies over the period 1996-2016, I do not find any relationship between succession gap and firm performance for the full sample. Results, however, are dramatically different when a similar association is examined for subsamples of the data. For example, under forced succession and when pre-succession performance of the firm has been poor, succession gaps are disruptive and lead to worse subsequent firm performance, and this result becomes stronger in the long-term. In stark contrast, however, when the succession itself is not forced or when the pre-succession performance has been good, a drastic change between the predecessor and the successor's personal traits and past experience contributes towards stability or enhanced subsequent performance. Consistent with the prediction that more successor-induced personnel and structural alterations would be expected when the event itself signals a change in firm policy or post-succession redirection, I find that successors who considerably differ from their predecessors co-opt a greater proportion of the board one year after assuming office. Furthermore, they have greater discretion to make far-reaching changes regarding business downsizing and strategic business shift.

Overall, the findings in this study suggest that appointing a successor with gaps in characteristics is not value-enhancing when the succession event is disruptive in nature. These findings have strong implications for how firms manage the succession of CEOs, particularly when dealing with either forced succession or a leadership change under poor pre-succession firm performance. Especially, firms should avoid appointing new CEOs who are likely to stamp their authority on the firm in order to signal a change or simply just to be different (more likely to occur when the succession gap is high). Instead, what such firms truly need is a newcomer who possesses an in-depth industry knowledge and has a good understanding of the corporate culture. In doing so, successors will be less likely to demand drastic changes and suffer less resistance within the organization which would minimize the disruption on the firm's structure and existing relationships. Consequently, the successor is able to first, figure out the exact cause and appropriate treatment for the organization, and second, could proactively seek help from incumbent board members and top managers instead of only giving lip service to reforms.

Table 2. 1 Summary Statistics

Table 2.1 presents summary statistics of the variables used in this paper spanning the period 1996-2016. Columns 1 to 3 provide comparisons of descriptive statistics between succession group and non-succession group. Columns 4 to 6 report comparisons of descriptive statistics between forced succession and non-forced succession group. Columns 7 to 9 report comparisons of descriptive statistics between poor pre-performance and good pre-performance group. The dependent variable, PERFORMANCE, is defined as ROA (return on total assets) in the year following the succession event. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. Forced (Non-forced) Succession group is defined if the predecessor of the firm is forced out (not forced out) during the succession event. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Poor (Good) Pre-Performance groups are defined if the firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level. Firm Characteristic control variables include: past firm performance (PRE_PERFORMANCE), the number of years since the firm was established (FIRM_AGE), leverage (LEV), firm size (SIZE), market-to-book ratio (MTB), capital expenditure ratio (CAPEX), free cash flow ratio (FCF) and fixed tangible assets (TANG). Corporate Governance control variables include: board size (BOARD_SIZE), and board independence (BOARD_IND). CEO characteristics control variables include: CEO total annual compensation (TOTAL_PAY), the percentage of outstanding shares owned by the CEO (OWNERSHIP), the proportion of total annual CEO compensation that comes from option grants and stocks (EQUITY_INTENSITY), CEO-chairman indicator (DUALITY), founder-CEO indicator (FOUNDER), family-member-CEO indicator (FAMILY_MEMBER), and successor origin (OUTSIDER). Definitions of control variables are provided in Appendix A. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	Succession (S) vs Non-Succession (NS) Group			Forced Succession (F) vs Non-forced Succession (NF) Group			Poor Pre-Performance (PP) vs Good Pre-Performance (GP) Group		
Variable	S Mean	NS Mean	Difference	F Mean	NF Mean	Difference	PP Mean	GP Mean	Difference
	1	2	3	4	5	6	7	8	9
PERFORMANCE	0.164	0.165	-0.001	0.147	0.170	-0.023***	0.122	0.199	-0.076***
GAP_INDEX	1.817	0.000	1.817***	1.940	1.776	0.165	1.810	1.823	-0.013
PRE_PERFORMANCE	0.166	0.166	0.000	0.148	0.173	-0.025***	0.113	0.213	-0.100***
FIRM_AGE	4.020	3.840	0.180***	3.882	4.071	-0.189**	4.024	4.016	0.008
LEV	0.245	0.235	0.010	0.267	0.236	0.031**	0.261	0.231	0.030**
SIZE	9.032	8.742	0.290	9.293	8.943	0.350***	9.195	8.887	0.309***
MTB	1.953	2.061	-0.108*	1.854	1.991	-0.137	1.427	2.411	-0.984***
CAPEX	0.056	0.059	-0.003	0.049	0.058	-0.009***	0.045	0.065	-0.021***
FCF	0.039	0.037	0.002	0.036	0.040	-0.004	0.034	0.043	-0.009
TANG	0.437	0.414	0.023**	0.441	0.434	0.007	0.413	0.459	-0.045**
BOARDSIZE	10.67	10.36	0.311***	10.60	10.69	-0.093	10.65	10.69	-0.035
BOARD_IND	0.734	0.744	-0.010	0.770	0.721	0.049***	0.746	0.725	0.021
TOTAL_PAY	8.601	8.571	0.031	8.624	8.607	0.016	8.636	8.571	0.065
OWNERSHIP	0.023	0.080	-0.057***	0.023	0.023	0.000	0.021	0.025	-0.004
EQUITY_INTENSITY	0.566	0.494	0.072***	0.588	0.560	0.028	0.566	0.565	0.001
DUALITY	0.346	0.696	-0.350***	0.341	0.350	-0.009	0.404	0.295	0.109***
FOUNDER	0.029	0.142	-0.113***	0.039	0.025	0.014	0.029	0.029	0.001
FAMILY_MEMBER	0.023	0.056	-0.033***	0.039	0.017	0.022	0.029	0.017	0.012
OUTSIDER	0.188	0.168	0.020	0.296	0.149	0.147***	0.233	0.149	0.084***
Observations	659	6482		179	475		309	350	

Table 2. 2 PSM Regression of Gap Index on Subsequent Firm Performance

Table 2.2 presents the results from PSM regression of CEO succession gaps on subsequent firm performance. The dependent variable, PERFORMANCE is the difference in subsequent performance between the treatment firm (succession firm) and the average subsequent performance of the matching group (non-succession matched peers), where subsequent performance is defined as ROA (return on total assets) in the year following the succession event. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Firm Characteristic control variables include: past firm performance (PRE_PERFORMANCE), the number of years since the firm was established (FIRM_AGE), firm size (SIZE), leverage (LEV), market-to-book ratio (MTB), capital expenditure ratio (CAPEX), free cash flow ratio (FCF) and fixed tangible assets (TANG). Corporate Governance control variables include: board size (BOARD_SIZE), and board independence (BOARD_IND). CEO characteristics control variables include: the percentage of outstanding shares owned by the CEO (OWNERSHIP), the proportion of total annual CEO compensation that comes from option grants and stocks (EQUITY_INTENSITY), CEO-chairman indicator (DUALITY), founder-CEO indicator (FOUNDER), family-member-CEO indicator (FAMILY_MEMBER), and successor origin (OUTSIDER). Columns 1, 2 and 3 report the estimates of treatment effect on subsequent performance controlling for industry and year fixed effects, for industry, year and industry-year fixed effects and for firm and year fixed effects, respectively. Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable: Subsequent Firm Performance

Variable	1	2	3
GAP_INDEX	0.000	0.004	-0.002
	(0.01)	(1.13)	(-0.53)
FORCED	-0.004	-0.011	0.006
	(-0.32)	(-0.83)	(0.46)
PRE_PERFORMANCE	-0.401***	-0.419***	-0.164***
	(-10.88)	(-11.98)	(-3.02)
FIRM_AGE	0.006*	0.006*	-0.102***
	(1.67)	(1.93)	(-2.73)
SIZE	0.004*	0.003	0.029**
	(1.84)	(1.58)	(2.51)
LEV	0.038**	0.038***	0.088**
	(2.32)	(2.65)	(2.38)
MTB	-0.014***	-0.015***	-0.011**
	(-4.98)	(-5.68)	(-2.44)
CAPEX	0.091	-0.043	0.513**
	(0.66)	(-0.32)	(2.58)
FCF	-0.078*	-0.141***	0.013
	(-1.74)	(-3.14)	(0.25)
TANG	-0.046***	-0.039***	0.057
	(-3.01)	(-2.79)	(1.25)
BOARDSIZE	-0.001	-0.001	0.001
	(-0.90)	(-0.80)	(0.47)
BOARD_IND	0.025	0.031	0.040
	(0.98)	(1.30)	(0.90)
OWNERSHIP	-0.025	-0.048	0.103*
	(-0.70)	(-1.56)	(1.69)
EQUITY_INTENSITY	0.038***	0.029***	0.036**
	(3.46)	(2.81)	(2.51)
DUALITY	-0.002	-0.003	-0.014
	(-0.42)	(-0.60)	(-1.50)
FOUNDER	-0.030*	-0.017	-0.022
	(-1.71)	(-1.11)	(-0.59)
FAMILY_MEMBER	0.011	0.015	0.023
	(0.75)	(1.16)	(0.55)
OUTSIDER	-0.008	-0.009*	-0.001
	(-1.44)	(-1.67)	(-0.08)
Constant	0.071	0.106	0.056
	(1.15)	(1.05)	(0.33)
Industry Fixed Effects	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes
Industry*Year Fixed Effects	No	Yes	No
Firm Fixed Effects	No	No	Yes
R-Squared	0.377	0.426	0.508
Observations	605	605	605

Table 2. 3 PSM Regression of Gap Index on Subsequent Firm Performance

Sub-Sample: Forced vs. Non-Forced

Table 2.3 presents the sub-sample results from PSM regression of CEO succession gaps on subsequent firm performance for forced and non-forced succession firms. The dependent variable, PERFORMANCE is the difference in subsequent performance between the treatment firm (succession firm) and the average subsequent performance of the matching group (non-succession matched peers), where subsequent performance is defined as ROA (return on total assets) in the year following the succession event. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. Forced (Non-Forced) subsample is defined if the predecessor of the firm is forced out (not forced out) during the succession event. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Firm Characteristic control variables include: past firm performance (PRE_PERFORMANCE), the number of years since the firm was established (FIRM_AGE), firm size (SIZE), leverage (LEV), market-to-book ratio (MTB), capital expenditure ratio (CAPEX), free cash flow ratio (FCF) and fixed tangible assets (TANG). Corporate Governance control variables include: board size (BOARD_SIZE), and board independence (BOARD_IND). CEO characteristics control variables include: the percentage of outstanding shares owned by the CEO (OWNERSHIP), the proportion of total annual CEO compensation that comes from option grants and stocks (EQUITY_INTENSITY), CEO-chairman indicator (DUALITY), founder-CEO indicator (FOUNDER), family-member-CEO indicator (FAMILY_MEMBER), and successor origin (OUTSIDER). Columns 1, 2 and 3 report the estimates of treatment effect on subsequent performance for forced succession firms controlling for industry and year fixed effects, for industry, year and industry-year fixed effects and for firm and year fixed effects, respectively. Columns 4, 5 and 6 report the estimates of treatment effect on subsequent performance for non-forced succession firms controlling for industry and year fixed effects, for industry, year and industry-year fixed effects and for firm and year fixed effects, respectively. Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable: Subsequent Firm Performance

	Forced			Non-Forced		
Variable	1	2	3	4	5	6
GAP_INDEX	-0.010**	-0.010**	-0.011**	0.007*	0.013***	0.005
	(-2.36)	(-2.19)	(-2.27)	(1.85)	(3.10)	(1.31)
PRE_PERFORMANCE	-0.422***	-0.455***	-0.152***	-0.380***	-0.420***	-0.073
	(-12.01)	(-13.61)	(-2.96)	(-10.26)	(-12.14)	(-1.33)
FIRM_AGE	0.005	0.004	-0.108***	0.005	0.005	-0.081**
	(1.45)	(1.48)	(-3.06)	(1.30)	(1.54)	(-2.15)
SIZE	0.003	0.002	0.027**	0.005*	0.004*	0.033***
	(1.42)	(0.88)	(2.48)	(1.93)	(1.67)	(2.97)
LEV	0.024	0.025*	0.089**	0.040**	0.039***	0.079**
	(1.50)	(1.79)	(2.55)	(2.36)	(2.64)	(2.21)
MTB	-0.019***	-0.019***	-0.012***	-0.015***	-0.015***	-0.013***
	(-7.12)	(-7.72)	(-2.96)	(-5.25)	(-5.92)	(-3.07)
CAPEX	0.043	-0.096	0.482**	0.002	-0.140	0.303
	(0.32)	(-0.74)	(2.56)	(0.01)	(-1.06)	(1.56)
FCF	-0.109**	-0.138***	-0.005	-0.071	-0.147***	0.041
	(-2.53)	(-3.22)	(-0.10)	(-1.58)	(-3.31)	(0.81)
TANG	-0.037**	-0.027*	0.054	-0.048***	-0.040***	0.074
	(-2.49)	(-1.95)	(1.23)	(-3.05)	(-2.84)	(1.64)
BOARDSIZE	-0.002	-0.001	-0.000	-0.001	-0.001	0.000
	(-1.33)	(-1.02)	(-0.06)	(-1.03)	(-0.77)	(0.24)
BOARD_IND	0.033	0.036	0.045	0.021	0.027	0.034
	(1.31)	(1.57)	(1.06)	(0.78)	(1.16)	(0.77)
OWNERSHIP	-0.036	-0.049*	0.028	-0.016	-0.042	0.120*
	(-1.06)	(-1.66)	(0.46)	(-0.43)	(-1.38)	(1.93)
EQUITY_INTENSITY	0.037***	0.028***	0.035**	0.036***	0.027***	0.021
	(3.49)	(2.79)	(2.50)	(3.26)	(2.61)	(1.43)
DUALITY	-0.004	-0.005	-0.018*	-0.001	-0.001	-0.012
	(-0.81)	(-1.10)	(-1.88)	(-0.13)	(-0.23)	(-1.27)
FOUNDER	-0.022	-0.011	0.013	-0.028	-0.015	-0.016
	(-1.26)	(-0.73)	(0.32)	(-1.58)	(-0.95)	(-0.45)
FAMILY_MEMBER	0.021	0.023*	0.045	0.013	0.016	0.029
	(1.53)	(1.91)	(0.94)	(0.84)	(1.29)	(0.73)
OUTSIDER	-0.006	-0.007	0.004	-0.007	-0.007	-0.004
	(-1.12)	(-1.33)	(0.40)	(-1.19)	(-1.38)	(-0.38)
Constant	0.129**	0.110	0.124	0.086	0.119	-0.047
	(2.21)	(1.05)	(0.76)	(1.39)	(1.21)	(-0.28)
Industry Fixed Effects	Yes	Yes	No	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year Fixed Effects	No	Yes	No	No	Yes	No
Firm Fixed Effects	No	No	Yes	No	No	Yes
R-Squared	0.458	0.495	0.553	0.408	0.460	0.521
Observations	175	175	175	430	430	430

Table 2. 4 PSM Regression of Gap Index on Subsequent Firm Performance

Sub-Sample: Poor vs. Good Pre-Succession Performance

Table 2.4 presents the sub-sample results from PSM regression of CEO succession gaps on subsequent firm performance for firms with poor past performance and firms with good pre-succession performance. The dependent variable, PERFORMANCE is the difference in subsequent performance between the treatment firm (succession firm) and the average subsequent performance of the matching group (non-succession matched peers), where subsequent performance is defined as ROA (return on total assets) in the year following the succession event. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Poor (Good) Pre-Performance groups are defined if the firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level. Firm Characteristic control variables include: past firm performance (PRE_PERFORMANCE), the number of years since the firm was established (FIRM_AGE), firm size (SIZE), leverage (LEV), market-to-book ratio (MTB), capital expenditure ratio (CAPEX), free cash flow ratio (FCF) and fixed tangible assets (TANG). Corporate Governance control variables include: board size (BOARD_SIZE), and board independence (BOARD_IND). CEO characteristics control variables include: the percentage of outstanding shares owned by the CEO (OWNERSHIP), the proportion of total annual CEO compensation that comes from option grants and stocks (EQUITY_INTENSITY), CEO-chairman indicator (DUALITY), founder-CEO indicator (FOUNDER), family-member-CEO indicator (FAMILY_MEMBER), and successor origin (OUTSIDER). Columns 1, 2 and 3 report the estimates of treatment effect on subsequent performance for forced succession firms controlling for industry and year fixed effects, for industry, year and industry-year fixed effects and for firm and year fixed effects, respectively. Columns 4, 5 and 6 report the estimates of treatment effect on subsequent performance for non-forced succession firms controlling for industry and year fixed effects, for industry, year and industry-year fixed effects and for firm and year fixed effects, respectively. Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable: Subsequent Firm Performance

	Poor Pre-Performance			Good Pre-Performance		
Variable	1	2	3	4	5	6
GAP_INDEX	-0.022***	-0.021***	-0.024***	0.014***	0.020***	0.012***
	(-3.79)	(-3.48)	(-4.00)	(3.20)	(4.53)	(2.65)
FORCED	0.002	-0.002	0.006	0.050***	0.042**	0.069***
	(0.10)	(-0.09)	(0.33)	(2.71)	(2.30)	(3.59)
PRE_PERFORMANCE	-0.407***	-0.449***	-0.137***	-0.403***	-0.445***	-0.079
	(-11.59)	(-13.63)	(-2.73)	(-11.02)	(-13.09)	(-1.45)
FIRM_AGE	0.004	0.003	-0.085**	0.005	0.005	-0.086**
	(1.02)	(0.90)	(-2.45)	(1.32)	(1.61)	(-2.28)
SIZE	0.004	0.002	0.027**	0.005**	0.004*	0.034***
	(1.45)	(0.76)	(2.51)	(2.02)	(1.83)	(3.02)
LEV	0.015	0.016	0.075**	0.039**	0.039***	0.078**
	(0.94)	(1.14)	(2.19)	(2.39)	(2.76)	(2.19)
MTB	-0.019***	-0.020***	-0.011***	-0.015***	-0.016***	-0.014***
	(-7.03)	(-7.85)	(-2.75)	(-5.52)	(-6.19)	(-3.34)
CAPEX	-0.040	-0.203	0.345*	0.008	-0.129	0.333*
	(-0.29)	(-1.57)	(1.87)	(0.06)	(-1.01)	(1.73)
FCF	-0.115***	-0.157***	-0.003	-0.069	-0.140***	0.043
	(-2.69)	(-3.73)	(-0.06)	(-1.57)	(-3.22)	(0.86)
TANG	-0.038**	-0.026*	0.048	-0.044***	-0.035***	0.073
	(-2.49)	(-1.89)	(1.13)	(-2.87)	(-2.58)	(1.62)
BOARDSIZE	-0.001	-0.000	0.000	-0.002	-0.002	0.000
	(-0.80)	(-0.23)	(0.11)	(-1.32)	(-1.24)	(0.05)
BOARD_IND	0.029	0.031	0.054	0.019	0.026	0.023
	(1.14)	(1.39)	(1.30)	(0.72)	(1.12)	(0.53)
OWNERSHIP	-0.017	-0.042	0.100*	-0.022	-0.048	0.104*
	(-0.51)	(-1.44)	(1.68)	(-0.64)	(-1.60)	(1.69)
EQUITY_INTENSITY	0.038***	0.027***	0.035***	0.032***	0.024**	0.010
	(3.63)	(2.73)	(2.63)	(2.88)	(2.32)	(0.69)
DUALITY	0.001	-0.000	-0.011	-0.004	-0.005	-0.015
	(0.11)	(-0.09)	(-1.19)	(-0.71)	(-0.97)	(-1.55)
FOUNDER	-0.022	-0.009	0.005	-0.027	-0.014	-0.017
	(-1.28)	(-0.61)	(0.12)	(-1.53)	(-0.95)	(-0.46)
FAMILY_MEMBER	0.015	0.019	0.020	0.015	0.020	0.007
	(1.09)	(1.56)	(0.52)	(1.05)	(1.64)	(0.16)
OUTSIDER	-0.004	-0.005	0.002	-0.008	-0.008	-0.006
	(-0.79)	(-0.91)	(0.21)	(-1.29)	(-1.57)	(-0.53)
Constant	0.131**	0.180*	0.030	0.099	0.067	-0.008
	(2.25)	(1.91)	(0.19)	(1.64)	(0.63)	(-0.05)
Industry Fixed Effects	Yes	Yes	No	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year Fixed Effects	No	Yes	No	No	Yes	No
Firm Fixed Effects	No	No	Yes	No	No	Yes
R-Squared	0.465	0.504	0.561	0.426	0.480	0.529
Observations	298	298	298	307	307	307

Table 2. 5 PSM Regression of Gap Index on Subsequent Long-Term Firm Performance

Table 2.5 presents the results from PSM regression of CEO succession gaps on subsequent long-term firm performance using sub-samples. The dependent variable, PERFORMANCE is the difference in subsequent long-term performance between the treatment firm (succession firm) and the average subsequent performance of the matching group (non-succession matched peers), where subsequent long-term performance is defined as the three-year average subsequent ROA (return on total assets). The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's three years average pre-succession firm performance is lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. Panel A reports estimates of gap index on long-term post-succession firm performance. Panel B reports sub-sample estimates of gap index on long-term post-succession firm performance for forced/ non-forced succession firms while Panel C reports sub-sample estimates of gap index on long-term post-succession firm performance for poor pre-succession performance/ good pre-succession performance firms. Columns 1, 2 and 3 report the estimates of treatment effect on subsequent performance controlling for industry and year fixed effects, for industry, year and industry-year fixed effects and for firm and year fixed effects, respectively. The models include all control variables from Table 2.2 (suppressed). Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable: Subsequent Long-Term Firm Performance						
Variable	1		2		3	
Panel A: PSM Regression of Gap Index on Subsequent Long-term Firm Performance						
GAP_INDEX	-0.000		0.000		-0.003	
	(-0.11)		(0.01)		(-0.71)	
FORCED	-0.009		-0.008		-0.008	
	(-0.63)		(-0.55)		(-0.59)	
PRE_PERFORMANCE	-0.233***		-0.233***		-0.009	
	(-6.02)		(-6.11)		(-0.14)	
Controls	Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		No	
Year Fixed Effects	Yes		Yes		Yes	
Industry*Year Fixed Effects	No		Yes		No	
Firm Fixed Effects	No		No		Yes	
R-Squared	0.424		0.475		0.510	
Observations	439		439		439	
Panel B: PSM Regression of Gap Index on Subsequent Long-term Firm Performance – Forced vs. Non-Forced	Forced			Non-Forced		
	1	2	3	1	2	3
GAP_INDEX	-0.019***	-0.018***	-0.023***	0.007*	0.008**	0.005
	(-3.65)	(-3.56)	(-4.34)	(1.88)	(2.15)	(1.37)
PRE_PERFORMANCE	-0.219***	-0.230***	0.044	-0.252***	-0.257***	0.084
	(-5.71)	(-6.10)	(0.72)	(-6.69)	(-6.88)	(1.31)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	No	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year Fixed Effects	No	Yes	No	No	Yes	No
Firm Fixed Effects	No	No	Yes	No	No	Yes
R-Squared	0.482	0.533	0.575	0.467	0.518	0.552
Observations	120	120	120	319	319	319
Panel C: PSM Regression of Gap Index on Subsequent Long-term Firm Performance – Poor Pre-Succession Performance vs. Good Pre-Succession Performance	Poor Pre-Succession Performance			Good Pre-Succession Performance		
	1	2	3	1	2	3
GAP_INDEX	-0.025***	-0.026***	-0.029***	0.018***	0.021***	0.017***
	(-4.25)	(-4.31)	(-4.81)	(4.42)	(4.88)	(3.97)
FORCED	-0.035	-0.033	-0.037*	0.044***	0.039**	0.054***
	(-1.60)	(-1.47)	(-1.71)	(2.82)	(2.50)	(3.28)
PRE_PERFORMANCE	-0.214***	-0.232***	0.087	-0.267***	-0.277***	0.050
	(-5.71)	(-6.31)	(1.52)	(-7.19)	(-7.56)	(0.80)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	No	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year Fixed Effects	No	Yes	No	No	Yes	No
Firm Fixed Effects	No	No	Yes	No	No	Yes
R-Squared	0.504	0.554	0.589	0.491	0.547	0.576
Observations	202	202	202	237	237	237

Table 2. 6 PSM Regression of Gap Index on Subsequent Alternative Performance Measures

Table 2.6 presents the results from PSM regression of CEO succession gaps on subsequent firm performance. The dependent variable, PERFORMANCE is the difference in subsequent performance between the treatment firm (succession firm) and the average subsequent performance of the matching group (non-succession matched peers). Alternative performance measures include: (1) ROA redefined as EBIT (earnings before interest and tax) scaled by total assets as opposed to EBITDA (earnings before interest, tax, depreciation and amortization) over total assets, and (2) return on equity (ROE), defined as net income divided by total equity. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm performance is lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. Panel A reports estimates of gap index on subsequent firm performance. Panel B reports sub-sample estimates of gap index on subsequent firm performance for forced/ non-forced succession firms while Panel C reports sub-sample estimates of gap index on subsequent firm performance for poor pre-succession performance/ good pre-succession performance firms. Columns 1 and 3 report the estimates of treatment effect on subsequent performance using a one-year post-succession window, while Columns 2 and 4 report the estimates of treatment effect on subsequent performance by adopting a three-year post-succession time frame. The models include all control variables from Table 2.2 (suppressed). All regressions include firm and year fixed effects. Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Variable	ROA (EBIT/ Total Assets)				ROE			
Panel A: PSM Regression of Gap Index on Subsequent Firm Performance	1		2		3		4	
GAP_INDEX	-0.003		0.002		0.005		0.007	
	(-0.54)		(0.59)		(0.25)		(0.40)	
FORCED	-0.019		-0.019		0.024		-0.018	
	(-1.37)		(-1.46)		(0.31)		(-0.28)	
PRE_PERFORMANCE	0.006		0.050		0.060		0.274***	
	(0.11)		(0.81)		(1.39)		(4.16)	
Controls	Yes		Yes		Yes		Yes	
Year Fixed Effects	Yes		Yes		Yes		Yes	
Firm Fixed Effects	Yes		Yes		Yes		Yes	
R-Squared	0.504		0.509		0.465		0.472	
Observations	605		439		605		439	
Panel B: PSM Regression of Gap Index on Subsequent Firm Performance	F	NF	F	NF	F	NF	F	NF
– Forced (F) vs. Non-Forced (NF)	1	1	2	2	3	3	4	4
GAP_INDEX	-0.016***	0.003	-0.017***	0.005	0.001	0.018	-0.047**	0.025
	(-3.55)	(0.70)	(-3.25)	(1.49)	(0.04)	(0.73)	(-1.99)	(1.43)
PRE_PERFORMANCE	0.014	0.073	0.111**	0.075	0.067	0.051	0.272***	0.320***
	(0.29)	(1.37)	(2.18)	(1.26)	(1.60)	(1.09)	(4.70)	(4.84)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.521	0.503	0.546	0.523	0.488	0.470	0.496	0.481
Observations	175	430	120	319	175	430	120	319
Panel C: PSM Regression of Gap Index on Subsequent Firm Performance –	PP	GP	PP	GP	PP	GP	PP	GP
Poor Pre-Succession Performance (PP) vs. Good Pre-Succession Performance (GP)	1	1	2	2	3	3	4	4
GAP_INDEX	-0.031***	0.012***	-0.031***	0.019***	-0.049	0.048*	-0.045*	0.034*
	(-5.01)	(2.80)	(-5.81)	(4.97)	(-1.56)	(1.67)	(-1.67)	(1.68)
FORCED	0.005	0.010	-0.010	0.005	0.041	0.020	-0.069	0.035
	(0.26)	(0.58)	(-0.58)	(0.36)	(0.34)	(0.20)	(-0.61)	(0.47)
PRE_PERFORMANCE	0.027	0.056	0.139***	0.034	0.053	0.047	0.283***	0.299***
	(0.56)	(1.07)	(2.68)	(0.62)	(1.20)	(1.06)	(4.91)	(4.53)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.546	0.511	0.560	0.531	0.491	0.472	0.502	0.479
Observations	298	307	202	237	298	307	202	237

Table 2. 7 Two-Stage Least Square Regression

Table 2.7 presents the results from two-stage least squares regression of CEO succession gaps on subsequent firm performance using sub-samples. The dependent variable, PERFORMANCE is the difference in subsequent performance between the treatment firm (succession firm) and the average subsequent performance of the matching group (non-succession matched peers), where subsequent performance is defined as ROA (return on total assets) in the year following the succession event. Panel A performs the one-year subsequent firm performance and panel B illustrates three-year average subsequent firm performance. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. Instrumented GAP_INDEX is the fitted value of GAP_INDEX from the first-stage regression. Potential candidates' average gap index (CANDIDATE_GAP) serves as the instrumental variable. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm performance is lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. The models include all control variables from Table 2.2 (suppressed). Definitions of control variables are provided in Appendix A. Regressions include year and firm fixed effects. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	Whole Sample		Forced		Non-Forced		Poor Pre-Performance		Good Pre-Performance	
Variable	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage
Panel A: PSM Regression of Gap Index on One-Year Subsequent Firm Performance										
GAP_INDEX		-0.000		-0.012**		0.007		-0.032***		0.017***
		(-0.08)		(-2.24)		(1.48)		(-4.00)		(3.44)
CANDIDATE_GAP	0.854***		0.966***		0.869***		0.745***		0.907***	
	(52.83)		(62.40)		(64.09)		(35.75)		(44.48)	
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.839	0.098	0.835	0.112	0.759	0.092	0.806	0.127	0.880	0.128
Observations	605	605	175	175	430	430	298	298	307	307
Panel B: Treatment Effect on Three-Year Average Subsequent Firm Performance										
GAP_INDEX		-0.003		-0.014**		0.001		-0.044***		0.020***
		(-0.73)		(-2.44)		(0.24)		(-6.00)		(4.39)
CANDIDATE_GAP	0.852***		0.927***		0.866***		0.660***		0.969***	
	(44.46)		(56.66)		(49.36)		(32.11)		(61.96)	
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.835	0.495	0.869	0.525	0.818	0.504	0.834	0.547	0.886	0.523
Observations	439	439	120	120	319	319	202	202	237	237

Table 2. 8 OLS Regression of Gap Index on Post-Succession Board Co-option

Table 2.8 presents the results from panel data regression of CEO succession gaps on post-succession board co-option. The dependent variable, CO_OPTED is the difference in proportion of board changes one-year after the CEO assumed office between each treatment firm (succession firm) and its matching group (non-succession matched peers). The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. HIGH_GAP is a dummy equal to one if the firm has a GAP_INDEX greater than the mean value of 1.82 and zero otherwise. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm performance is lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. OUTSIDER takes the value of one if the successor was employed by the firm for less than one year before he/ she assumed office and zero otherwise. Control variables include: firm size (SIZE), leverage (LEV), number of business segments (NUM_SEGMENTS), firm age (FIRM_AGE), market-to-book ratio (MTB), research and development expense (RND), annualized standard deviation of monthly stock return over the year (STKVOL), firm profitability (ROA), free cash flow ratio (FCF), board size (BOARDSIZE), CEO share ownership (OWNERSHIP), CEO age (AGE), and CEO duality (DUALITY). Regressions include year and firm fixed effects. Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable: Subsequent Board Co-option		
	1	2
GAP_INDEX	0.025*	
	(1.81)	
HIGH_GAP		0.079***
		(2.70)
FORCED	0.062	0.054
	(1.39)	(1.38)
OUTSIDER	0.031	0.021
	(0.70)	(0.60)
POOR_PRE_PERF	-0.020	-0.021
	(-0.76)	(-0.88)
SIZE	-0.076	-0.045
	(-1.31)	(-0.86)
LEV	0.180	0.153
	(1.17)	(1.13)
NUM_SEGMENTS	0.000	0.000
	(0.10)	(0.02)
FIRM_AGE	-0.326	-0.283
	(-1.60)	(-1.61)
MTB	-0.002	0.006
	(-0.09)	(0.38)
RND	-0.023	-0.039
	(-0.14)	(-0.25)
STKVOL	0.030	-0.037
	(0.11)	(-0.14)
ROA	0.240	0.163
	(1.07)	(0.81)
FCF	-0.310*	-0.218
	(-1.65)	(-1.24)
BOARD_SIZE	0.022***	0.016**
	(3.07)	(2.42)
OWNERSHIP	0.240	0.297
	(0.84)	(1.20)
AGE	0.016***	0.012***
	(4.72)	(4.56)
DUALITY	0.042	0.043
	(1.27)	(1.47)
Constant	0.799	0.592
	(0.95)	(0.82)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
R-Squared	0.134	0.116
Observations	547	620

Table 2. 9 Logit Regression of High Gap on Subsequent Structural Changes

Table 2.9 presents the results from logit regression of CEO succession gaps on post-succession structural changes. Panel A reports the results of subsequent structural change and panel B represents the results of subsequent employee reduction. The dependent variables illustrate the structural change in panel A, STRUCTURE_CHANGE is a dummy variable taking the value of one if asset sale is announced and a firm's book value of total assets is reduced by more than 10% during the 2-year post-succession period. For the dependent variable that demonstrate the employee reduction in panel B, EMPLOYEE_REDUCTION is a dummy equal to one if a firm's number of employees is reduced by more than 10% during the 2-year post-succession period. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. HIGH_GAP, is a dummy equal to one if the firm has a GAP_INDEX greater than the mean value of 1.82 and zero otherwise. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm performance is lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. Control variables include: CEO origin (OUTSIDER), industry-adjusted debt capacity (LOW_DEBT_CAPACITY), interest coverage (INTEREST_COVERAGE), dividend coverage (DIV_COVERAGE), dividend cut indicator (DIV_CUT), return on assets (ROA), size (SIZE), leverage (LEV), market-to-book ratio (MTB), number of business segments (NUM_SEGMENTS), sale-based Herfindahl Index (HERF) and median industry sales growth rate within which the firm operates (IND_SALES_GROWTH). Regressions include year and firm fixed effects. Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Dependent Variable – Subsequent Structural Change				
Variable	1	2	3	4
HIGH_GAP	0.155	0.059	0.160	-0.307
	(0.74)	(0.27)	(0.77)	(-1.03)
FORCED	0.095	-1.207	0.073	0.042
	(0.25)	(-1.37)	(0.19)	(0.11)
FORCED*HIGH_GAP		1.733*		
		(1.76)		
POOR_PRE_PERF			0.183	0.062
			(0.99)	(0.32)
POOR_PRE_PERF*HIGH_GAP				0.894**
				(2.34)
Controls	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Pseudo R-Squared	0.189	0.191	0.190	0.193
Observations	2,316	2,316	2,316	2,316
Panel B: Dependent Variable – Subsequent Employee Reduction				
HIGH_GAP	0.125	-0.025	0.146	-0.149
	(0.61)	(-0.12)	(0.70)	(-0.53)
FORCED	0.711**	-0.520	0.688*	0.672*
	(1.96)	(-0.81)	(1.89)	(1.84)
FORCED*HIGH_GAP		1.939**		
		(2.47)		
POOR_PRE_PERF			0.522***	0.440**
			(2.90)	(2.35)
POOR_PRE_PERF*HIGH_GAP				0.584
				(1.58)
Controls	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Pseudo R-Squared	0.125	0.129	0.130	0.131
Observations	2,063	2,063	2,063	2,063

Table 2. 10 PSM Regression of High Gap on Subsequent Strategic Instability

Table 2.10 presents the PSM regression of CEO succession gaps on subsequent firm strategic instability. The dependent variable, SI is the difference in subsequent firm strategic instability between the treatment firm (succession firm) and the matching group (non-succession matched peers), where subsequent strategic instability is defined the variance in firm strategy a year following the succession event. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. HIGH_GAP, is a dummy equal to one if the firm has a GAP_INDEX greater than the mean value of 1.82 and zero otherwise. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm performance is lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. Control variables include: pre-succession firm strategic instability (PRE_SI), size (SIZE), firm age (FIRM_AGE), market-to-book ratio (MTB), free cash flow (FCF), return on assets (ROA), board size (BOARD_SIZE), board independence (BOARD_IND), CEO age (AGE), CEO share ownership (OWNERSHIP), CEO duality (DUALITY) and CEO origin (OUTSIDER). Regressions include year and firm fixed effects. Columns 1, 2 and 3 report the effect of High Gap, the interaction effect of High Gap and forced turnover, and the interaction effect of High Gap and Poor pre-succession firm performance on subsequent firm strategic instability, respectively. Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable: Subsequent Strategic Instability			
	1	2	3
HIGH_GAP	-0.039	-0.276	-0.312
	(-0.12)	(-0.79)	(-0.89)
FORCED	0.065	-0.875	-0.054
	(0.15)	(-1.36)	(-0.12)
FORCED*HIGH_GAP		1.690**	
		(1.97)	
POOR_PRE_PERF	0.011	0.014	-0.159
	(0.06)	(0.07)	(-0.75)
POOR_PRE_PERF*HIGH_GAP			1.158**
			(2.25)
PRE_SI	0.044	0.045	0.051
	(0.86)	(0.88)	(1.00)
SIZE	-1.656***	-1.644***	-1.654***
	(-4.11)	(-4.08)	(-4.11)
FIRM_AGE	3.990**	3.843**	4.031**
	(2.14)	(2.07)	(2.17)
MTB	-0.259	-0.275	-0.256
	(-1.52)	(-1.62)	(-1.51)
FCF	0.193	-0.011	-0.218
	(0.09)	(-0.00)	(-0.10)
ROA	0.669	0.446	0.524
	(0.30)	(0.20)	(0.24)
BOARD_SIZE	0.022	0.021	0.028
	(0.28)	(0.26)	(0.35)
BOARD_IND	-0.848	-0.738	-0.934
	(-0.49)	(-0.43)	(-0.55)
AGE	-0.029	-0.029	-0.025
	(-1.11)	(-1.13)	(-0.97)
OWNERSHIP	-0.295	0.206	-0.377
	(-0.11)	(0.08)	(-0.14)
DUALITY	0.230	0.181	0.212
	(0.71)	(0.56)	(0.66)
OUTSIDER	0.665	0.671	0.728
	(1.49)	(1.51)	(1.64)
Constant	2.188	2.547	1.568
	(0.29)	(0.34)	(0.21)
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
R-Squared	0.048	0.053	0.055
Observations	425	425	425

Chapter 3 CEO Succession Gap and Firm Risk-taking

3.1. Introduction

In this chapter, I focus my attention on the policy implications of a change in top management especially when the incoming CEO is markedly different on personal traits when compared to the one outgoing. As mentioned in the previous chapter, while CEO succession has received significant attention both in the academic literature and the popular press, the role of broad differences in CEO personal characteristics in affecting both firm value and related policy choices has surprisingly received scant attention. Since stakeholders of every hue are exposed to the consequences of CEO succession, such events are keenly watched with both hope and caution given the scale and scope of changes that usually accompany in a shake-up of top management. Boards use such opportunities not only to right previous wrongs but also to help steer the company along a path that fulfils the strategic goals and aspirations of shareholders.

While boards have a range of options at their disposal to incentivise and shape the behavior of CEOs and top management, the literature is increasingly focusing on the role of CEO's personal traits in shaping corporate policies. Supplementing overt contractual arrangements that shape incentives with choice of a CEO who has the personal traits that match the company's strategic imperatives seems to be increasingly used by boards in planning and implementing the succession process. In this chapter, I examine whether differences in the risk-taking personal attributes of the incoming and outgoing CEOs influence future firm risk.

However, the interest in the relationship between CEO personal attributes and firm risk is not entirely new. For example, Huang and Kisgen (2013) assert that male executives are associated with higher debt issuance frequency. The authors also find that, consistent with the overconfidence hypothesis, male CEOs, relative to their female counterparts, tend to engage more in acquisitions. Findings in Benmelech and Frydman (2015) show that CEO military experience is negatively related to riskier investment and financing policies. Faccio et al. (2016) assert that female CEOs generally lead firms that are characterized by lower volatility in earnings, lower financial leverage, and have a higher chance of survival than otherwise similar firms led by their male counterparts. In addition, Cain and McKeon (2016) argue that CEOs who possess private pilot's licenses are associated with higher leverage and engage in operations that eventually lead to greater stock return volatility. Barring a sprinkling of studies, there is however a visible

absence of work that focuses on how differences in personal traits between the predecessor and successor affect risk-taking.[23]

I contribute to this literature by examining the role of an index that captures the differences in personal risk-taking attributes of the incoming and outgoing CEOs in explaining post-turnover firm risk. In a sense, I implicitly examine whether boards use the CEO turnover as an opportunity to replace the outgoing CEO with one possessing a markedly different attitude towards risk that is tailored to deliver on the firm's strategic objectives. Specifically, I am interested in the risk implications of a shift in corporate culture brought about by CEO turnover. Given that boards look for indicators that would help them pick the right person to fulfil the firm's objectives, observed associations between differences in personal attributes/ experiences of the incoming and outgoing CEOs and firm risk are likely to provide invaluable insights to inform the hiring process.

It would, however, be naïve to expect a uniform impact of the risk index across all treatment firms since characteristics of succession events can differ in ways where the impact of hiring a CEO with radically different risk-traits could be beneficial under certain conditions and less effective or even harmful at other times. A subset of successions that are likely to present adverse cultural shocks include ones where firms are already reeling under disruptive conditions, for example in successions where the outgoing CEO is forced to quit, or when the succession is preceded by poor firm performance. Therefore, given this dichotomy in the potential outcome of the succession process, I not only examine whether succession-induced gaps in CEO risk characteristics influence post-succession firm risk but also identify conditions when such associations are more/ less effective.[24] In other words, I investigate whether the effect of the risk-taking gap index on subsequent firm risk is more pronounced when firms are subject to disruptive changes leading up to the succession, given the diametrically opposite undertones that usually characterize succession events.

My sample comprises all firms in the S&P 500 index spanning the period 1992 to 2016. I take CEO gender, age, cultural background, career variety, and educational expertise into consideration when constructing the risk-taking gap index given their

[23] Very few papers investigate how differences between the predecessor and the successor could affect firm value and risk following a succession event. One exception is Huang and Kisgen (2013), who document that a transition from male to female is associated with a lower rate of asset growth, fewer acquisitions, lower leverage, and reduced debt issuance frequency. Other studies include Serfling (2014) and Faccio et al. (2016), who find that young-to-old and male-to-female transitions lead to substantially reduced firm risk, respectively.

[24] Hereafter, I use the terms 'pre-succession' and 'post-succession' to deal with the period before and after the predecessor is replaced by a new CEO, respectively. These terms are used in several papers, including Friedman and Singh (1989); Friedman and Saul (1991) and Zhang and Rajagopalan (2004).

importance in affecting firm policies and overall firm risk. Since future performance of firms undergoing a succession is measured relative to others that do not experience such an event, a random selection of matching firms could potentially suffer from sample selection bias. To minimize the effect of such bias, I use the propensity score matching (PSM) methodology where for every firm experiencing a leadership change (i.e. in the treatment group), five matching firms that did not go through a succession but share similar pre-succession characteristics, are identified among the match firms. In other words, the treatment and match samples have similar pre-succession firm characteristics with the only difference being that treatment firms have a change in top management. Instead of examining the role of overt motivations through compensation contracts, I explore whether differences between predecessor and successor characteristics affect subsequent firm risk.[25]

Primary findings in this chapter can be summarized as follows. In the baseline regression model, I find that the risk-taking gap index contributes positively to firm total risk and its idiosyncratic component after controlling for firm and year fixed effects. However, the risk-taking gap index does not substantially lead to higher systematic risk. Analysis of the channels through which disruptions happen suggests that when the: (1) turnover is forced; (2) pre-succession firm performance is poor; and (3) successor is an outsider; the incoming CEOs with higher risk-taking gap index generally lead to both higher firm total risk and its systematic and idiosyncratic components in the subsequent one-year when compared to their non-succession matched pairs. Furthermore, the explanatory power of the CEO risk-taking gap index on subsequent firm risk holds after controlling for CEO compensation incentives and CEO psychological traits (CEO overconfidence). In addition, I also find an increased risk-taking gap associated with greater financial and operating leverage (i.e. higher systematic risk), higher R&D intensity, lower capital expenditure, and increased firm focus (i.e. higher idiosyncratic risk). Collectively, the findings in this chapter suggest that the association between the differences in personal risk preferences of the incoming and outgoing CEOs is particularly strong when the succession event indicates a mandate for change. This subsequently gives the successor greater latitude in imprinting his/ her personal risk preferences on subsequent firm policy choices.

[25] For example, Coles et al. (2006) find that firms led by managers with higher vega (therefore greater incentives to take on risks) tend to implement riskier firm strategies.

My research is associated with a growing literature in both corporate and behavioral finance that stresses the importance of a change in leadership on firms' subsequent risk-taking and related corporate policies. This paper contributes to at least two strands of literature. First, it contributes to the CEO successions literature by investigating the impact of CEO characteristics on firm risk-taking in a CEO succession context.[26] Second, it contributes to the literature that examines the influence of CEO personal characteristics and past experience on firms' subsequent risk-taking choices.[27] By acknowledging that individuals are a sum of native traits and past experiences, I consider differences between the predecessor and successor characteristics rather than looking at a single perspective such as gender (see, e.g. Huang and Kisgen (2013); Faccio et al. (2016)), age (see, e.g. Taylor (1975); Hambrick and Mason (1984); Serfling (2014), or others (see, e.g. Barker and Mueller (2002); Malmendier and Tate (2005); Giannetti (2011); Graham et al. (2013); Mishra (2014); Henderson et al. (2017)). This paper provides a comprehensive analysis on the impact of the change in CEO risk propensity on subsequent firm risk-taking. To the best of my knowledge, this is the first paper that takes various aspects of CEO personal characteristics and considers the predecessor and the successor's risk-taking gaps when examining subsequent firm policies and risk.

3.2. Hypothesis Development

There is a large body of literature that examines how CEO past experience and personal traits translate into firm financing and investment choices. Some find evidence that manager fixed effects have strong explanatory power over firm policy choices (see Bertrand and Schoar (2003), Frank and Goyal (2007)) while others study the relationship between CEO psychological traits and firm risk-taking and show that narcissistic/ overconfident/ hubristic CEOs are more likely to make risky policy decisions and that the firms they manage tend to have a higher overall risk (see, e.g., Chatterjee and Hambrick (2007), Hackbarth (2008), Li and Tang (2010), Malmendier et al. (2011), and Hirshleifer et al. (2012)). Others try to understand the relationship between CEO past experience (see, e.g. Benmelech and Frydman (2015); Cain and McKeon (2016); Bernile et al. (2017); Sunder et al. (2017); Duchin et al. (2018)) and personal characteristics (see, e.g. Huang

[26] Examples include: Friedman and Saul (1991); Miller (1993); Frank and Goyal (2007); Schepker et al. (2017).
[27] Examples include: Grable (2000); Bertrand and Schoar (2003); Chatterjee and Hambrick (2007); Hackbarth (2008); Malmendier and Nagel (2011); Malmendier et al. (2011); Benmelech and Frydman (2015); Kish-Gephart and Tochman Campbell (2015); Cain and McKeon (2016); Faccio et al. (2016); Bernile et al. (2017); Sunder et al. (2017); Gopalan et al. (2018).

and Kisgen (2013); Serfling (2014); Cain and McKeon (2016); Faccio et al. (2016)) and firm risk-taking.

Recent studies take a step further in examining the influence of CEO risk-taking traits on firm risk with some suggesting that boards choose managers because of their specific attributes. For example, Serfling (2014) documents that firms with a less (more) risky profile tend to hire older (younger) CEOs. They argue that an increase in CEO age is also associated with a decline in the convexity of CEO compensation incentives, indicating that CEOs and firm risk preferences are aligned in order to reward older (younger) CEOs with fewer (more) incentives when implementing risk-related strategies (i.e., risk averse firms tend to hire CEOs who are older). In addition, Cronqvist et al. (2012) finds that firm leverage largely mimics CEO's personal mortgage debt after controlling for past capital structure and other CEO characteristics known to be correlated with risk-taking decisions. Furthermore, they document that changes in a CEO's personal leverage following succession events has explanatory power on the changes in firm leverage. Faccio et al. (2016) find evidence that female CEOs not only display greater levels of risk-avoidance with regard to firm financing policies, but that a top leadership change from male to female is associated with a significant reduction in the propensity for risk-taking.

In this study, I examine the relationship between CEO personal characteristics and professional risk-taking in succession contexts by using a risk-taking gap index that comprises not one but several aspects of the CEO's observable characteristics. I postulate that managers can impose their idiosyncratic style/ preferences on the companies they manage and hence their professional disposition would reflect their personal traits. Therefore, in a change in leadership where the successor exhibits higher levels of risk-taking attributes, this will lead to higher subsequent firm risk. My main hypothesis to test this contention is as follows:

H1*: An increase in the level of the risk-taking gap between the incoming and outgoing CEOs will lead to elevated overall firm risk.*

Forced succession reflects the intention of the company's board to engage in adaptive organizational change (Friedman & Singh, 1989; Hutzschenreuter et al., 2012). It is also an indication of an intent to break with the past with reference to regime, management styles, existing structure, as well as cultures and customs within an organization. As a consequence, turnaround strategies would be expected (Schepker et al., 2017).

Similarly, when pre-succession performance has been poor, drastic strategic and structural changes are desired (Friedman & Singh, 1989; Friedman & Saul, 1991) and expected. As such, appointing a person with a higher risk preference could reflect the board's intention to implement riskier business policies. Moreover, riskier policies are more likely to be introduced when a business is doing poorly or when the manager's job is in jeopardy, while managers would be less encouraged to take on risks when their firms are doing well (March & Shapira, 1987). In other words, under non-forced succession and/ or good pre-succession firm performance, there is a premium on continuity.

Furthermore, the successor's origin may play an important role in determining the degree to which he/ she could successfully impose his/ her idiosyncratic style on a company's operations. Outside successors are less likely to be influenced by the existing culture and therefore more able to operate the firm from a new perspective. Besides, tapping an external candidate is the most explicit way in conveying the board's intention to redirect subsequent firm policies, mission statements, and vision (Friedman & Saul, 1991). As such, external hires are generally given greater latitude of action in affecting subsequent policy changes and are often pressured into taking immediate action (Friedman & Saul, 1991; Shen & Cannella, 2002). As such, I hypothesize that the positive relationship between risk-taking gap index and firm risk-taking would be more pronounced when the underlying nature of the succession event implies a mandate for change. Hence, I test the following hypothesis:

H2*: The positive relationship between CEO risk-taking gaps and subsequent firm risk is more pronounced in: (a) firms with forced CEO removal; (b) firms with poor pre-succession performance; and (c) firms with outside successors.*

3.3. Research Design

3.3.1. Data

My starting sample comprises all S&P 500 firms between 1992 and 2016. I focus on CEOs since they are the main decision-makers regarding firm investment (Bennedsen et al., 2017) and financing policies (Frank & Goyal, 2007; Graham et al., 2015). CEO basic information (including name, gender, age, stock ownership, compensation structure and tenure) was extracted from Compustat's ExecuComp database. Additional demographic information (including career history, educational background, birthplace, family background, and cultural diversity) was hand-collected from S&P Capital IQ

database, Bloomberg's online executive profile webpage, NNDB.com, Ancestry, and Wikipedia in the last instance. The classification of succession events into forced and non-forced follows the method used in Parrino (1997),[28] which is widely used in recent CEO succession studies (see, for e.g., Guo and Masulis (2015), Hazarika et al. (2012), Huson et al. (2004), and Jenter and Kanaan (2015)). The demographic information on S&P 500 top executives was then merged with Compustat's annual fundamental data and BoardEx's Director and Director Legacy database, with the latter containing information on board size and board independence. The construction of CEO delta (pay-performance sensitivity) and vega (risk-taking incentives) are in line with the method in Core and Guay (2002) and Coles et al. (2006).[29] I excluded financial services firms and utilities (two-digit SIC Code 60-69 and 49), given that firms in these sectors are heavily regulated which may lead to risk outcomes very different from those of non-regulated companies. I also excluded all successions followed by M&As or spin-offs given the difficulty in separating the impact of leadership change from that of a major organizational restructure. After dropping firms without CEOs' full names in the given fiscal year, I arrive at a final sample of 7,141 firm-year observations to conduct the empirical analysis.

3.3.2. Variables Construction

3.3.2.1. Firm Risk-Taking Dependent Variables

Guided by Low (2009), Armstrong and Vashishtha (2012), Cain and McKeon (2016) and others, the dependent variables in this analyses are: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns,[30] (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return over the previous 36 months) and market monthly

[28] Related news articles, whether published in the mainstream media or industry-specific journals and magazines, were retrieved through Factiva. The classification takes the following steps: (1) If the press clearly states that the outgoing CEO is forced out, being fired by the board of directors, or the departure is caused by policy differences or pressure imposed by stakeholders, then the succession event is classified as forced. (2) All other departures for CEOs above and including age 64, succession events caused by death or health-related disability, and CEO-initiated successions are classified as non-forced. (3) Departures for CEOs under the age of 64 are re-examined further and classified as forced if there are no signs of death or health-related disability announced by the press, the press does not report an acceptance of another position (either external positions or chairmanship of the company's board) by the outgoing CEO, or the press does not announce the retiring of the predecessor at least six months before the event. (4) If a CEO serves as interim CEO and is replaced later, I classify it as non-forced. (5) Cases classified as forced are reclassified if the reports convincingly state that the succession event has nothing to do with the company's activities.

[29] I gather executive delta and vega from Lalitha Naveen's personal website: https://sites.temple.edu/lnaveen/data/.

[30] Daily returns produce qualitatively similar results, albeit all the coefficients on the main variables are smaller in economic magnitude and the interaction effect of *FORCED/ POOR_PRE_PERF* and *GAP_INDEX_RISK* on systematic risk is dominated by the positive coefficient on the variable *GAP_INDEX_RISK*. Results are provided in Appendix F.

returns,[31] and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals, all of which mirror the overall risk profile of a firm. For all firms in the sample, the average total risk and idiosyncratic risk for the subsequent one-year (three-year) period are 8.99% (9.01%) and 8.21% (8.18%), respectively. The average systematic risk is 4.22% for the subsequent one-year period and 4.24% for the three-year post-succession period. I use the subsequent one-year risk measures in the main regression models and the subsequent three-year average risk measures for robustness check since managerial propensity for risk is associated with a faster decision-making process (Taylor & Dunnette, 1974; Papadakis & Barwise, 2002).

3.3.2.2. Risk-taking Gap Index

In a survey of 1,075 participants on personal characteristics, Grable (2000) provides evidence that males, those in younger age cohorts, people who are married, those who are professionally employed with higher incomes and greater economic expectations, as well as people with better education and/ or higher levels of finance literacy are generally associated with higher levels of risk tolerance. Similarly, a CEO's observable demographic, behavioral and socioeconomic characteristics play an important role in indicating managerial risk propensity and therefore influence firm risk-taking. I construct my risk-taking gap index by considering the CEO's gender, age, cultural background, career variety, and educational expertise since these attributes have been shown to influence risk and risk-taking behavior. I next discuss each of these five CEO personal traits.

First, male CEOs tend to be associated with higher levels of firm risk compared to their female counterparts. Huang and Kisgen (2013) document that male executives are more likely to adopt risky financial and investment policies as suggested by their higher debt issue frequency and a higher level of engagement in acquisition activities as opposed to female executives, which is consistent with prior literature stating that males exhibit more confidence than females (Barber & Odean, 2001; Malmendier & Tate, 2005). Faccio et al. (2016) find evidence that firms led by female CEOs favor conservative-oriented corporate strategies, maintain lower overall leverage and enjoy less volatile

[31] Instead of just looking at beta, I follow Low (2009) and Armstrong and Vashishtha (2012) by taking the standard deviation of the product of the firm's beta times market monthly returns as the systematic risk measure, which makes systematic and idiosyncratic risk comparable in terms of scale.

earnings when compared to otherwise similar firms led by male CEOs. In addition, they find a decrease in firm risk-taking when females succeed male CEOs.

Second, compared to older CEOs, younger CEOs tend to be bolder and more risk tolerant (Taylor, 1975; Hambrick & Mason, 1984; Barker & Mueller, 2002; Serfling, 2014). Younger leaders tend to be less concerned about financial and job security since they have a longer time horizon (Barker & Mueller, 2002) and hence are more likely to support business innovations and bring about market and technological breakthroughs as opposed to older CEOs. Prendergast and Stole (1996) argue that younger managers are more likely to pursue aggressive investment strategies in order to signal their ability and talent. Serfling (2014) documents that older CEOs are more likely to be hired by firms with low risk profiles, are associated with lower operating leverage, lower R&D investment, and an increase in diversifying acquisitions. Furthermore, firms encourage older CEOs to pursue low risk policies by tying a smaller portion of their compensation to stock return volatility.

Third, I argue that a US CEO succeeding a non-US CEO will result in increased firm risk. Graham et al. (2013) argue that US CEOs are more tolerant to losses, more optimistic, and more willing to take chances compared to their non-US counterparts. They also assert that CEOs more tolerant of risk are likely to be involved in higher levels of acquisition activities and that the level of CEO optimism is positively related to firm leverage, especially in the use of short-term debt.

Fourth, past literature suggests that compared to industry specialists, general managers have more favorable employment and job-hopping opportunities (Giannetti, 2011; Mishra, 2014). Therefore, generalists are often too myopic to see beyond current interests and tend to take on more risks, as their personal wealth is less tied to long-term firm performance and thus they are less committed to the longevity of the firm (Mishra, 2014). While industry specialists favor a continuation of existing policies (Giannetti, 2011), they tend to diversify and reduce firm risks as their tenure within the firm increases (May, 1995). In addition, May (1995) finds evidence that CEO tenure is negatively related to equity volatility and firm leverage, which corroborates the argument that job-hoppers are more likely to pursue risky strategies because they value job security less. Moreover, career variety represents personal biases favoring experimentation and change and is positively related to personality traits such as extraversion and openness to experience (Judge et al., 2002; Judge et al., 2004). A multi-industry career experience could possibly contribute to future feasible strategic and social innovation within a company, directing

the firm down novel paths.[32] As such, I argue that generalists are associated with higher levels of risk appetite when compared to industry specialists.

Finally, I postulate that a CEO's educational expertise does matter with regard to firm strategic risk-taking, and that CEOs with a technical educational background are more likely to engage in risk-taking. Henderson et al. (2017) document that lawyer CEOs are associated with a lower level of firm litigation risk. They further conclude that this negative relationship is partly due to a reduction in the firm's risk-taking activities which could potentially lead to lawsuits and adoption of more conservative corporate policies. Several academics argue that some finance programs (especially MBAs) put too much emphasis on bottom-line performance and personal welfare maximization while overlooking some important aspects such as strategic management, critical and creative thinking, enterprise innovation, adaptation, and flexibility within today's ever-changing business environment (Mintzberg, 2004; Rubin & Dierdorff, 2009; Almog-Bareket, 2011). Tyler and Steensma (1998) and Barker and Mueller (2002) assert that CEOs with technical educational backgrounds are more committed to research funding and are generally less cautious in risky R&D investment as opposed to those with a business or law degree. Consistent with this, Malmendier and Tate (2005) find that firms led by CEOs with technical educational backgrounds have higher investment-cash flow sensitivities when compared to those majoring in finance areas.

Based on the above arguments, I construct a risk-taking gap index (GAP_INDEX_RISK) as a composite measure of the difference in personal risk-taking attributes between the incoming and outgoing CEOs as follows:

$$Gap\_Index\_Risk = Gender\_Gap\_Risk + Age\_Gap\_Risk + Cultural\_Gap\_Risk + Career\_Variety\_Gap\_Risk + Tech\_Edu\_Gap\_Risk$$

where Gender_Gap_Risk equals one if a male CEO takes over from a female predecessor. I calculate the standard deviation of the age of CEOs in my sample on a yearly basis, and set the dummy variable Age_Gap_Risk to equal one when the successor is at least two

[32] One real life example of a risk-taking generalist is Ajay Banga, who chose to join Pepsi Co. after thirteen years' service at Nestlé. Two years later, he left Pepsi Co. and spent his next thirteen years at Citi before ending up as CEO of MasterCard. He stated in an interview: "I, in truth, in my, my generation you stay in careers for a long time. 30 years in one company. You guys are different. And I think you've got the right approach to it, because if you don't try out new things, if you're not willing to take a risk, you will achieve very little reward out of the system the way it's constructed today. And so, I have a big encouragement saying if you want to move jobs, or you want to move roles within the company, or you want to move companies or industries, think about it but go for it. Don't, don't, don't procrastinate forever, and don't hesitate forever"

standard deviations younger than the predecessor.[33] Cultural_Gap_Risk is a dummy that equals one if a native-American replaces a non-US CEO and zero otherwise. Career_Variety_Gap_Risk is a binary variable that equals one if the incoming CEO is a general manager (i.e. had previously worked in another GICS sector and/ or moves across different functional areas) while the outgoing CEO is an industry specialist (had spent his/ her entire career in one industry and/ or even in just one firm) and zero otherwise. I follow the Malmendier and Tate (2005) approach in defining technical education background. Tech_Edu_Gap_Risk equals one if the incoming CEO has an undergraduate or postgraduate degree in engineering/ mathematics/ physics/ chemistry/ biology / pharmacy/ operations research/ other applied sciences while the outgoing CEO does not have any such degree specializations, and zero otherwise. For all the 659 succession events, 9 cases involve males replacing females, 185 cases involve younger successors replacing older predecessors, 146 cases involve generalists replacing industry specialists, 43 cases involve US CEOs replacing non-US predecessors, and 91 cases are characterized by CEOs with technical educational backgrounds replacing those without one. To construct the risk index, I add one point to the risk-taking gap index if the successor exhibits more risk tolerance with regard to each of the aforementioned five personal traits. The overall index value ranges from zero to five.

3.3.2.3. Control Variables

Choice of control variables in my models is motivated by Faccio et al. (2016), Cain and McKeon (2016) among others**.** I control for firm profitability (return on assets, ROA), computed as earnings before interest, taxes, depreciation and amortization scaled by total assets; firm size (SIZE), computed as the natural logarithm of total assets; firm age (FIRM_AGE), computed as the natural logarithm of the number of years since the firm was established; market-to-book ratio (MTB), computed as the market value of total assets scaled by book value of total assets, which serves as a proxy for firm investment and growth opportunity; sales growth (SALES_GROWTH), another growth proxy is computed as the annual percentage increase in sales; total book leverage (LEV_TDA), is the sum of the firm's debt in current liabilities and long-term debt scaled by book value of total assets; research and development (RND), which is the research and development

[33] In my case, there is an age gap if the successor is 13.84 years younger than the predecessor. My definition of age gap is consistent with Serfling (2014), who defines 'successors are 13 to 40 years younger than incumbents' as 'much younger' and 'successors are 6 to 12 years younger than incumbents' as 'younger'.

expenditure scaled by sales; and capital expenditure ratio (CAPEX), which is capital expenditure scaled by total assets.

In addition, I include several CEO incentive controls since these variables have been documented in past literature to impact on corporate policies and firm risk (Core & Guay, 2002; Coles et al., 2006; Armstrong & Vashishtha, 2012; Kini & Williams, 2012; Serfling, 2014; Cain & McKeon, 2016; Faccio et al., 2016): CEO pay-performance sensitivity (LOG_DELTA), computed as the natural log of dollar change in wealth associated with a one percentage change in firm's stock price; and CEO risk-taking incentives (LOG_VEGA), defined as the natural log of dollar change in wealth associated with a one percentage change in the standard deviation of the firm's stock returns.[34] All variables are winsorized at the top and bottom 1% level to minimize the influence of outliers. Appendix E provides additional information on the construction of the abovementioned control variables.

I further add a set of variables that indicate the underlying nature of the succession event. The first variable, FORCED, is a dummy variable equal to one if the predecessor is forced out (board-initiated succession) and zero otherwise (customary, CEO-initiated or death/ health-related disability-initiated succession). The classification of succession events into forced and non-forced follows the method used in Parrino (1997). The second variable, POOR_PRE_PERF, is a dummy that takes the value one if the firm's pre-succession financial performance and stock returns are both below its industry median in a given fiscal year in my sample and zero otherwise, with industry defined at the same two-digit SIC code as the sample firm. The third variable, OUTSIDER, takes the value one if the successor was employed externally. Of the 659 succession events, 179 are forced turnovers (27.2%),[35] 309 are turnovers in circumstances where the pre-succession firm performance is below industry median (46.9%), and 124 cases are characterized by an outside successor (18.82%). I expect that under forced successions, poor pre-succession firm performance, and/ or external successions, my risk-taking gap index will result in higher levels of subsequent firm risk. In other words, I expect the interaction term between GAP_INDEX_RISK and FORCED/ POOR_PRE_PERF/ OUTSIDER to be positive.

[34] I follow prior literature and use the natural logarithm of delta and vega since both variables are highly skewed.
[35] The forced turnover ratio is close to that reported by Zhang and Rajagopalan (2004) for all COMPUSTAT listed manufacturing firms for the 1993-1998 period and Guo and Masulis (2015) for all listed firms in RiskMetrics database spanning the period 1996-2010.

3.3.3. Methodology - Propensity Score Matching

By comparing the outcome of firms that experienced succession in a given fiscal year with those that did not, I could estimate the actual effect on firm risk resulting from the succession event and the associated risk-taking gaps resulting from the succession. This approach could only work in the scenario where firms that went through a succession are randomly assigned. However, this is not the case in my sample. Firms, for example, with worse past performance are more likely to replace their CEOs. As poor pre-succession performance encourages firms to engage in more risk-taking activities (March & Shapira, 1987; Bromiley, 1991), 'treated' firms (firms that experienced CEO turnovers) are more likely to pursue riskier subsequent business strategies, regardless of whether they actually went through a change in their top executives or not. Under such circumstances, the estimated coefficient would suffer from potential sample selection bias, which arises when the key determinants of whether the firm went through a succession is related to subsequent firm risk-taking.

To alleviate the impact of such biases, I adopt the propensity score matching approach (PSM) to pick the match firms. Guided by economic theory and prior literature (Brown, 1982; Friedman & Singh, 1989), I choose the following pre-succession firm characteristics as the matching criteria: firm performance (PRE_PERFORMANCE), firm age (PRE_FIRM_AGE), firm size (PRE_SIZE), leverage (PRE_LEV), market-to-book value (PRE_MTB), tangibility (PRE_TANG), industry sector (SECTOR), fiscal year dummies (FYEAR), board size (PRE_BOARDSIZE), and board independence (PRE_BOARDIND). I further include the predecessor's personal and professional information such as age (PRE_AGE), ownership (PRE_OWNERSHIP), and CEO duality (PRE_DUALITY). I match each succession firm with five firms that did not experience a succession event but share similar pre-succession characteristics.[36] The PSM approach then uses a logit model to estimate the probability of experiencing a succession event as a function of the aforementioned matching criteria. I impose two restrictions: first, there is no leadership change in the following year after the transition year for short-term analysis; and second, there is no leadership change three years after the transition year for long-term robustness check.

The main regression model is as follows:

[36] I repeat the matching process by using the two closest firms and the three closest firms, respectively. The overall results are largely consistent with the reported findings using five closest firms.

$$TE_{i,t+1} = \alpha + \beta_1 Gap\_Index\_Risk_{i,t} + \sum_{n=1}^{N} \gamma_n FIRM_{n,i,t+1} + \sum_{r=1}^{R} \delta_r CEO_{r,i,t+1} + \epsilon_{i,t}$$

where TE is the difference in subsequent firm risk between the treatment firm and the average subsequent firm risk of the matching group of each firm *i* in year *t+1*. GAP_INDEX_RISK is succession risk-taking gap index for firm *i* in year *t*. FIRM is a vector of *N* firm characteristics control variables and CEO is a vector of *R* CEO compensation incentive control variables. I also control for year and firm fixed effects in the empirical models.

3.4. Empirical Results

3.4.1. Summary Statistics and Correlations

Table 3.1 displays descriptive statistics of firm characteristics as well as CEO incentives that can potentially influence subsequent firm risk-taking following the succession event. As shown in Panel A, compared with those that did not go through such an event (i.e. non-succession group), firms that belong in the succession group are generally larger in size, are more established as indicated by an firm age, and have fewer growth opportunities as suggested by lower market-to-book ratio and sales growth. While succession firms do not differ much from non-succession firms with regard to subsequent firm leverage, they do tend to have smaller subsequent R&D investments. One possible reason could be that the incoming CEO takes a 'big bath'[37] in the transition year and utilize income-increasing accruals by cutting discretionary expenditures such as R&D and capital expenditure in subsequent years (see Murphy and Zimmerman (1993)). Apart from this, since new leaders generally enjoy a more sensitive termination-performance relationship, such career concerns may discourage them from taking on unsystematic risks. Another possible reason is that the incoming CEO's lack of firm-specific knowledge will simply encourage him/ her to play it safe rather than substantially invest in long-term risky projects after assuming office. Moreover, for firms belonging to the succession group, incumbent CEO's wealth is less tied to firm performance shortly after they are put in charge of the business.

[37] Incoming CEOs manipulate the company's income statement to make prior poor performance look even worse in order to make future performance look better. This is often implemented in a relatively bad year so that managers can enhance next year's earnings and their future compensation in an artificial manner at the expense of transition year's earnings.

By comparing firm-year descriptive statistics of forced against non-forced succession firms (as shown in Panel B), it is clear that firms experiencing a forced succession are generally less profitable and have less growth potential as evidenced by lower ROA, market-to-book ratio and sales growth. As well, forced succession firms tend to be less established. Moreover, compared with their non-forced counterparts, forced succession firms are characterized by higher financial leverage, higher R&D investments, lower capital expenditure, and higher total and idiosyncratic firm risks one year following the succession event. Interestingly, although firms are more likely to choose external candidates under forced removals, incoming CEO's risk-taking gap index in forced succession firms does not differ much from that in non-forced succession firms.

Panel C compares firms that have performed poorly in the past with those having a pre-succession financial performance above industry average. Findings suggest that the market responds negatively, causing poorly performing firms to have lower market-to-book ratio on average. Similar to forced succession firms, poorly performing firms take on more risks in the period post-succession (as suggested by higher total risk, systematic risk and idiosyncratic risk), which confirms March and Shapira (1987) assertion that riskier policies are more likely to be introduced when the business declines than when things are going well. In addition, as indicated by a lower pay-performance sensitivity, incoming CEOs in poorly performing firms do not shoulder the responsibility for poor post-succession firm profitability if such a trend continues.

Panel D compares firms hiring new CEOs from outside with those promoting internal candidates. Similar to forced succession, external succession firms tend to be smaller with lower growth potential. As suggested by the lower pay-performance sensitivity, outsiders tend to have less vested interest in the firm and therefore behave more aggressively with regard to risk-taking policy choices, which is ultimately reflected in higher subsequent idiosyncratic and total stock return volatility.

< Insert Table 3.1 here >

To check for the existence of potential multicollinearity, I also construct a correlations matrix of the key independent variables that are subsequently used in the regression models. The results show that most of the independent variables used in the regression models have a correlation coefficient less than 0.15. I further compute variance inflation factors (VIF) to check for multicollinearity; the highest value of VIF for each

independent variable is 2.44,[38] suggesting that multicollinearity is not a significant concern.[39]

3.4.2. Risk-Taking Gap Index and Subsequent Firm Risk

Table 3.2 contains results from the propensity score matching analysis on subsequent firm risk measures. The dependent variables in models 1, 2 and 3 are subsequent firm total risk (STKVOL), systematic risk (SYSVOL) and idiosyncratic risk (IDIO_STKVOL), respectively. I take CEO compensation incentives into consideration by controlling for CEO pay-performance sensitivity (LOG_DELTA) and pay-volatility sensitivity (LOG_VEGA) given the importance of CEO compensation wealth effects on firm risk-taking policy choices (John & John, 1993; Core & Guay, 2002; Coles et al., 2006; Armstrong & Vashishtha, 2012; Serfling, 2014; Cain & McKeon, 2016; Faccio et al., 2016). I account for firm fixed effects and year fixed effects in my empirical models, so that the impact of ignoring unobservable firm- and year-specific characteristics which may influence both the decision to change the firm's top leadership and firm risk-taking policies can be mitigated (Faccio et al., 2016).

As shown in Table 3.2, the variable of interest (GAP_INDEX_RISK) positively contributes to firm total risk and its idiosyncratic component at the 10% level after controlling for firm and year fixed effects. Although the sign of the coefficient is consistent with prediction, GAP_INDEX_RISK does not substantially lead to higher subsequent systematic risk in my sample. This may not be surprising since nearly 75% of the succession events in the sample are characterized by non-forced succession (475 out of 659 cases) / good past firm performance (492 out of 659 cases) / internal promotion (535 out of 659 cases). Consequently, the results from my main regression models (especially regarding subsequent systematic risk) may possibly be due to averaging over different types of succession events (i.e. forced vs non-forced, poor past performance vs good past performance, and/ or external succession vs internal promotion).

<Insert Table 3.2 here>

To test whether the significance of my primary finding is different for subsamples of the data, I include interaction terms to the baseline models in an effort to test whether the relationship between CEO risk-taking gaps and subsequent firm risk is conditioned on factors such as the nature of the succession event and/ or firm performance preceding

[38] VIF score is often decided in order to show two variables having multicollinearity once it is over 10.
[39] To save space, I do not report the correlation matrix.

the succession. Results presented in Table 3.3 illustrate the impact of the interactions between a forced succession dummy and CEO risk-taking gap index on subsequent firm risk-taking. Results show that the interaction between FORCED and GAP_INDEX_RISK has a significant positive effect on subsequent firm total risk as well as its systematic and idiosyncratic components. Moreover, the coefficient of the interaction term on idiosyncratic risk is smaller than that of systematic risk. Specifically, a one point increase in risk-taking gap index will lead to a 2.3 percentage point increase in firm total risk, a 2.5 percentage point increase in systematic risk and a 2.0 percentage point increase in idiosyncratic risk, respectively. Given the mean value of firm total risk (8.99%) and its systematic (4.22%) and idiosyncratic (8.21%) components, the impact of CEO risk-taking gap index on subsequent firm risk under forced succession is non-trivial. Indeed, forced succession reflects the intention of the company's board to engage in subsequent organizational change (Friedman & Singh, 1989; Hutzschenreuter et al., 2012) and therefore allows incoming CEOs with risk-taking gaps abundant discretion in affecting strategic changes and imprinting their personal traits on firm risk.

<Insert Table 3.3 here>

I next examine in Table 3.4 the impact of the interaction between poor past performance and CEO risk-taking gap index on subsequent firm risk. Consistent with Hypothesis 2 (b), the coefficients on GAP_INDEX_RISK and POOR_PRE_PERF are positive and statistically significant for all risk measures. Poor past performance not only gives CEOs characterized by higher levels of risk tolerance more mandate for change but also stimulate risk-takers to take on more risks to save the failing business. As such, tapping a successor with risk-taking gaps would result in a shift towards riskier policy choices, which will ultimately reflect in higher firm overall, systematic and idiosyncratic risk. The effect of CEO risk-taking gap index under poor past performance is more pronounced for idiosyncratic risk than its counterpart in the systematic risk equation. To be more precise, a one point increase in risk-taking gap index will increase a firm's subsequent total risk by 6.6 percentage points, increase its systematic component by 1.9 percentage points, and its idiosyncratic component by 6.4 percentage points after controlling for firm and year fixed effects. Moreover, compared with the coefficients on the interaction term of GAP_INDEX_RISK and FORCED in Table 3.3, the economic magnitude and statistical significance are larger for total risk and its idiosyncratic component across different risk measures.

<Insert Table 3.4 here>

I next present results of the interactions between a dummy variable that captures external versus internal succession and CEO risk-taking gap index on subsequent firm risk. Results in Table 3.5 confirm my earlier contention that external successions would intensify the positive relationship between CEO risk-taking gaps and subsequent firm risk. Among all three sub-hypothesis under Hypothesis 2, the interaction between OUTSIDER and GAP_INDEX_RISK turns out to be the strongest in affecting subsequent firm risk, both economically and statistically. A one point increase in risk-taking gap index will lead to a 10.5 percentage point increase in firm subsequent total risk, a 4.8 percentage point increase in systematic risk and 10.2 percentage point increase in idiosyncratic risk. Overall, results show that, regardless of whether it is through the channel of imprinting (i.e. CEOs imposing their idiosyncratic styles on the firms they lead) or matching (i.e. CEOs are purposefully chosen by firms because of their specific attributes), the difference between the outgoing and the incoming CEO's personal risk preference in non-economic contexts has strong explanatory power vis-à-vis subsequent firm risk under external succession.

The results for the control variables are largely similar to those reported in Table 3.3 and Table 3.4. Firm size positively correlates with firm systematic risk since larger firms tend to have higher leverage (Gruber & Warner, 1977; Ang et al., 1982) given less volatile earnings. Therefore, larger firms may have higher systematic risk, as the variation in firm beta could be largely explained by the degrees of its financial and operating leverage (Hamada, 1972; Rubinstein, 1973; Gahlon & Gentry, 1982; Mandelker & Rhee, 1984). In keeping with Mazzucato and Tancioni (2008), I also find evidence that higher R&D intensity leads to higher levels of firm idiosyncratic risk. In Table 3.5, consistent with prior literature, I find that CEO delta contributes to an elevated level of firm total risk (Coles et al., 2006; Kini & Williams, 2012; Cain & McKeon, 2016) and its idiosyncratic component (Armstrong & Vashishtha, 2012). In my sample, the incentive to increase equity value prevails over CEO's increased risk exposure that arises from a higher delta. Indeed, higher deltas may encourage CEOs to adopt riskier firm policies which lead to a wealth transfer from debtors to shareholders (John & John, 1993) and increase the probability for managers investing in risky positive NPV projects (Coles et al., 2006). Surprisingly, the compensation delta of firms in the sample dominates the effect of CEO incentives vis-à-vis firm risk-taking while vega seems to have no impact on subsequent firm risk. Overall, I find that the relationship between the GAP_INDEX_RISK variable and firm risk (total risk and its systematic and idiosyncratic

components) is positive and more pronounced when considering forced CEO succession, poor past performance, and when the successor is external.

<Insert Table 3.5 here>

3.4.3. Risk-Taking Gap Index and Subsequent Risk-Taking Policies

In this section, I examine the channels through which successors with risk-taking gaps can bring about changes in subsequent firm risk. Following Coles et al. (2006), Kini and Williams (2012), Serfling (2014) and others, I examine financial leverage (LEV_TDA/ LEV/_LDA/ LEV_TDM/ LEV_LDM), operating leverage (OPLEV), R&D investments (RND), capital expenditure (CAPEX), and firm diversification (HERF/ NUM_SEG) as potential channels, and hence treat these as dependent variables in my models. For firm financial leverage, I include four measurements: (1) book total leverage (LEV_TDA), defined as the sum of the firm's debt in current liabilities and long-term debt scaled by book value of total assets, (2) book long-term leverage (LEV_LDA), defined as book value of long-term debt scaled by book value of total assets, (3) total market leverage (LEV_TDM), defined as sum of the firm's debt in current liabilities and long-term debt scaled by market value of total assets, and (4) long-term market leverage (LEV_LDM), defined as the book value of long-term debt scaled by market value of total assets. Firm operating leverage (OPLEV) is defined as the percentage change in a firm's EBIT scaled by percentage change in sales. Mandelker and Rhee (1984) argue that higher operating leverage and/ or financial leverage will lead to higher firm systematic risk.

Low (2009) finds that book leverage is positively related to firm total risk as well as its idiosyncratic and systematic components. As such, I expect CEO risk-taking gaps to result in increased firm financial and/ or operating leverage following a leadership change, and here a positive relationship will be more pronounced under forced succession, poor prior firm performance, and external succession. As there is a trade-off between those two sources of systematic risk, i.e. firms with greater financial risk tend to have lower operating leverage and vice versa (Mandelker & Rhee, 1984), there is a chance that the positive relationship between risk-taking gaps and financial leverage (operating leverage) will be offset by the increase in operating leverage (financial leverage).

The next two dependent variables reflect a firm's risk in investment policies: (1) research and development (RND), defined as research and development expenditure scaled by total assets, and (2) capital expenditure (CAPEX), defined as total capital

expenditure scaled by total assets. R&D expenditures are usually accompanied by greater uncertainty and therefore are more risky compared to capital expenditures on property, plant, and equipment (Bhagat & Welch, 1995; Kothari et al., 2002; Coles et al., 2006; Serfling, 2014). Specifically, higher R&D intensity will contribute to higher firm total risk through its idiosyncratic rather than the systematic component. Low (2009) finds that firm R&D intensity is positively related to firm total and idiosyncratic risk and negatively related to systematic risk. Coles et al. (2006) documents that managers with higher risk incentives are more likely to shift their firms' investments from capital expenditures to R&D spending. Similarly, I expect CEO risk-taking gap index leading to increased R&D intensity and reduced level of capital expenditure following a leadership change, especially when the predecessor was either forced out, the firm suffered poor past performance, or when the successor is an outsider. However, as higher capital expenditures tend to increase stock riskiness through an increase in the firm's operating leverage (Lev, 1974), the relationship between risk-taking gap index and subsequent capital expenditure is not clear.

For firm diversification, I include: (1) segment sales-based Herfindahl-Hirschman Index (HERF), defined as the sum of square of business segment sales scaled by the square of firm total sales, and (2) number of business segments (NUM_SEG), defined as the number of business segments within which the firm operates. If annual segment data is not available, I assume that the firm operates in a single business segment and all sales are derived from one segment and set HERF and NUM_SEG to equal one (Cassell et al., 2012; Kini & Williams, 2012; Serfling, 2014). [40] A higher segment sales-based Herfindahl-Hirschman Index and fewer business segments is an indication of high production concentration and consequently lower business diversification (Coles et al., 2006; Kini & Williams, 2012; Serfling, 2014), which is likely to lead to higher firm-specific risk (Serfling, 2014). I expect CEO risk-taking gap index to be associated with higher Herfindahl-Hirschman Index and fewer business segments within which the firm operates. Again, I expect the positive relationship between GAP_INDEX_RISK and subsequent firm focus to be more pronounced under forced succession, poor prior firm performance, and external succession.

As shown in Table 3.6, successors with higher risk-taking gap index are associated with elevated levels of subsequent market and operating leverage. I next

[40] Segment sales data are obtained from Compustat's annual historical segment database.

differentiate between the underlying nature of the various types of succession events. Panel B reports estimates for the interaction effect of risk-taking gap index and forced removal, on subsequent firm risk. Consistent with my hypothesis, under forced succession, GAP_INDEX_RISK significantly contributes to higher subsequent firm financial leverage, higher R&D intensity, and lower capital expenditure. Although not statistically significant, the coefficient on the interaction between GAP_INDEX_RISK and FORCED suggests higher subsequent firm focus (as suggested by higher revenue concentration across segments and reduced number of business segments). Successors with higher risk-taking gaps tend to increase the firm's operating leverage regardless of whether the predecessor was forced out or retired voluntarily (as suggested by a significant positive sign on GAP_INDEX_RISK while the interaction between GAP_INDEX_RISK and FORCED dummy is not statistically significant).

Panel C reports estimates for the interaction effect of risk-taking gap index and poor pre-performance on subsequent firm risk. Except for the regressions models for long-term book leverage (LEV_LDA), operating leverage (OPLEV) and capital expenditure (CAPEX), all of the coefficients on the interaction between GAP_INDEX_RISK and POOR_PRE_PERF correlate with subsequent risk-taking policy measures at the 1% level of significance with the expected signs. Again, successors with higher levels of risk-taking attributes are associated with subsequently higher operating leverage and there is no difference in operating risk between poor and good past performers. The quick shift towards riskier subsequent financing (higher financial leverage), investment (higher R&D intensity) and diversification (higher concentration ratio and fewer business segments) policy is ultimately reflected in higher systematic, idiosyncratic, and overall risk.

Panel D reports estimates for the interaction effect of risk-taking gap index and external succession on subsequent risk-taking. Instead of shifting into riskier investment policies, external successors who exhibit a higher risk propensity compared to their predecessors will substantially increase their firms' financial leverage, which ultimately leads to higher overall risks for the firm. Indeed, external successions are generally associated with losses in firm-specific human capital (Greiner et al., 2003), as outsiders lack the in-depth understanding of the firm's internal operations and its external relationships (Shen & Cannella, 2002). However, the successors' knowledge and expertise wield an impact on both the availability of R&D strategies and the efficacy of implementing viable long-term risky investment strategies (Nelson, 1982). Without a

deep insight into the new firms they are running, implementing policies associated with elevated levels of R&D investments would be difficult for outsider successors. Moreover, as board members and employees of a company are not familiar with the incoming CEO appointed from outside, his/ her capability is harder to be accurately evaluated (Shen & Cannella, 2002) within a short period of time.

The easiest way for outsiders to prove themselves and gain respect is through delivering enhanced post-succession firm performance. I do find evidence that outsiders with risk-taking gaps substantially reduce capital expenditure shortly after they assume office. However, they do not necessarily put those excess funds into subsequent R&D investment. As the increase in discretionary spending (such as R&D and capital expenditure) will lead to an immediate decrease in firm earnings (Dechow & Sloan, 1991; Murphy & Zimmerman, 1993), they are better off altering their firms' post-succession risk via reduced financial leverage rather than increased R&D investments. In addition, I do not find evidence that outsiders with higher risk-taking propensity are associated with increased firm focus (i.e. higher concentration ratio and fewer business segments) after the succession event.

<Inset Table 3.6 here>

3.4.4. Robustness Tests

3.4.4.1. Controlling for CEO Overconfidence

Prior literature documents a strong relationship between CEO overconfidence and firm risk-taking policy choices (Hackbarth, 2008; Malmendier et al., 2011; Hirshleifer et al., 2012). To rule out the potential influence of CEO overconfidence on post-succession firm risk-taking, I re-run the analysis by adding CEO overconfidence as a control variable. I follow Campbell et al. (2011), Hirshleifer et al. (2012), and Cain and McKeon (2016) in constructing the CEO overconfidence variable by computing the average moneyness of CEO's unexercised vested options as the per-option realizable value (defined as the estimated value of in-the-money unexercised exercisable options over the number of unexercised exercisable options) divided by the estimated average strike price (defined as the fiscal year-end stock price less per-option realizable value). The resulting dummy variable, OVERCONFIDENCE, is set equal to one if a CEO fails to exercise options when the average moneyness is over 100% in the succession year or in the fiscal year following the succession event. Panel A contains results from the PSM regression of risk-

taking gap index on subsequent firm risk, while results from the interaction effect of risk-taking gap index and forced CEO turnover on subsequent firm risk are presented in Panel B. Panel C reports the PSM regression results of the interaction effect of risk-taking gap index and poor past performance on subsequent firm risk, and Panel D reports results for the interaction effect of risk-taking gap index and external succession on subsequent firm risk. All models include firm and year fixed effects.

As shown in Table 3.7, the coefficients on the additional control variable OVERCONFIDENCE are neither economically nor statistically significant across all models. The positive effect of risk-taking gap index on subsequent firm risk continues to hold under forced succession, poor pre-succession performance, and external succession confirming that my primary findings are not driven by CEO unobservable psychological traits such as overconfidence.

<Insert Table 3.7 here>

3.4.4.2. Controlling for CEO Total Pay

Cheng et al. (2015) document a natural correlation between management total compensation and firm risk in a classical principal-agent model. To rule out the possibility that my findings could be driven by CEO pay level, I re-estimate my empirical models by adding an additional control variable – TOTAL_PAY, which is defined as the natural logarithm of CEO annual total compensation. As shown in Table 3.8, the coefficients on TOTAL_PAY are neither economically nor statistically significant across all three regression models, and results are largely consistent with those obtained without controlling for CEO total pay. Overall, PSM results reported earlier hold and remain robust after adding this additional control variable.

<Insert Table 3.8 here>

3.4.4.3. CEO Risk-Taking Gap Index and Subsequent Long-Term Firm Risk-Taking

I re-estimate my models using a three-year pre- and post-succession time frame (Cucculelli & Micucci, 2008) since strategic changes do not happen overnight and a three-year post-succession window seems to be appropriate for policy changes. Results from such analysis are shown in Table 3.9. Again, by employing the PSM methodology, Panel A contains results of the regression of risk-taking gap index on subsequent long-term firm risk, Panel B illustrates the regression results of the interaction effect of risk-taking gap

index and forced CEO turnover on subsequent long-term firm risk, Panel C reports the regression results from the interaction effect of risk-taking gap index and poor past performance on subsequent long-term firm risk, and finally Panel D reports the regression outcome of the interaction effect of risk-taking gap index and external succession on subsequent long-term firm risk. All regressions models include firm and year fixed effects. The overall results are largely consistent with previous reported findings. The positive coefficients on GAP_INDEX_RISK, and the positive coefficients on the interactions between GAP_INDEX_RISK and FORCED/ POOR_PRE_PERF/ OUTSIDER become more apparent both in economic magnitude and statistical significance.[41] As such, my primary findings are robust to adopting different post-succession time frames.

<Insert Table 3.9 here>

3.4.4.4. Endogeneity

There are two forms of potential endogeneity concerns that need attention: reverse causality and omitted variable bias. Reverse causality emerges when the firm's overall risk profile and risk-taking policy choices affect CEO risk-taking gap index. Fortunately, this is not a concern for this study as I mainly focus on CEO personal traits (gender, age, and nationality/ race) and life experiences (educational background and career path) to construct the CEO risk-taking gap index, which long predate and hence are not likely to be affected by the firm's risk-taking policies and risk profile. Another concern is that some unobservable variables that simultaneously influence both firm risk and CEO risk-taking gap index may hinder my interpretations. For example, Low (2009) documents a negative relationship between Delaware firms and firm risk after the regime shift (which offers greater takeover protection to firms incorporated in Delaware). Low (2009) also finds that firms gradually increase CEO vega in response to the increased protection, in order to provide managers with more incentives to maintain firm risk.

As such, the positive relationship between CEO risk-taking gap index and subsequent firm risk could be explained by the endogenous matching of successors with a specific risk-taking propensity to firms based on omitted firm characteristics such as the state within which the firm is located. I address this potential concern by including firm

[41] For example, a one point increase in risk-taking gap index will lead to a 2.0 (0.9) percentage point increase in firm long-term (short-term) post-succession total risk at the 1% (10%) statistical significance level, a 1.6 (0.3) percentage point increase in long-term (short-term) systematic risk at the 1% statistical significance level (with no statistical significance) and a 1.4 (0.8) percentage point increase in long-term idiosyncratic risk at the 5% (10%) statistical significance level, respectively.

and year fixed effects in my empirical models to rule out the possibility that my findings could be driven by time-invariant firm characteristics (e.g. industry sector, geographical location). Further, since I am interested in examining the effect of CEO risk-taking gap index on firm risk in a succession context, omitted variables if any, must not be economically related to CEO risk-taking gap index whilst substantially affecting subsequent firm risk in ways predicted by the difference between the predecessor and the successor's observable personal traits. As such, omitted variables will not be a major concern in my regression analysis.

However, the propensity matching process still has some drawbacks. Even if I account for selection bias for firms experiencing a succession event, the study is still complicated by the endogeneity of a firm's decision to choose a successor with certain traits. More precisely, successors with risk-taking gaps are not randomly assigned and some omitted variables which simultaneously influence the selection process and subsequent firm risk-taking would hamper the interpretation of results from the PSM regressions. Further, firms demanding riskier policies may select successors with higher personal risk attributes, therefore, higher subsequent firm risk would be expected no matter who assumes office. To address such endogeneity concerns, I adopt the two-stage least squares approach. Inspired by Görlitz and Tamm (2015), who not only find that people with children are more risk averse, they also document a drop in personal risk preference even in the years preceding the birth of a child (especially for the first one). I, therefore, use the difference in the number of children between the predecessor and the successor (NUM_CHILDREN) as my main instrument.[42] The assumption is that ceteris paribus, CEOs with more children are more risk averse. NUM_CHILDREN is a suitable instrument as it is plausibly related to the difference between the incoming CEO and outgoing CEO's personal risk preference. However, one can hardly argue that it would have explanatory power on subsequent firm risk-taking policies and overall firm risk, except through its relationship with CEO risk-taking gaps.

I first regress the risk-taking gap index on the selected instrument - the difference in the number of children between the predecessor and the successor (NUM_CHILDREN) - along with the previously used set of control variables. Next, I use the instrumented GAP_INDEX_RISK (i.e. the fitted value of risk-taking gap index from the first-stage

[42] I do not have information on the number of children for all CEOs in my sample irrespective of whether they are predecessor or successor. The sample size drops significantly when performing the two-stage least squares regressions, largely due to missing information on the instrument (i.e. NUM_CHILDREN).

regression for firm *i* in year *t*) in the second-stage regressions to test my two main hypotheses, with the second one containing three sub-hypotheses. In Table 3.10, the dependent variables for the second stage regressions are the peer-adjusted subsequent firm risk (i.e. the difference in subsequent firm risk between the treatment firm and the average subsequent performance of the matching group of each firm *i* in year *t+1*). Panel A presents the results of the main outcomes from PSM regression of CEO risk-taking gap index on subsequent firm risk while Panels B, C, and D present results that include the interaction effect of CEO risk-taking gap index and forced removal, poor past performance, and external succession, respectively. All regressions also include firm and year fixed effects. It is clear from the results in Table 3.10, that the coefficients on NUM_CHILDREN in the first stage within (i.e. fixed effect) regression are all negatively related to GAP_INDEX_RISK at better than the 1% statistical significance level. This suggests that fewer children indeed has a strong explanatory power on increased CEO risk preference. Although results in Panel A reveal no relationship between risk-taking gap index and subsequent firm risks, I do however, find the hypothesized positive relationship to be more pronounced when considering disruptive environments such as forced turnover, poor pre-succession performance, and external succession. Overall, my main PSM results remain robust to the existence of any endogenous relationships that could render interpretation of results difficult.

<Insert Table 3.10 here>

3.4.5. Further Tests – Pre-Succession Firm-Level Determinant of CEO Risk-Taking Gap Index

So far I have examined in the previous sections how differences in CEOs' personality traits drive firm's risk-taking activities. An equally interesting question is, under what conditions would firms decide to employ successors with high risk-taking gaps in order to drive future risk-taking activities? For example, managers are more encouraged to adopt riskier policies when the business is in distress as opposed to when the firm is performing well (March & Shapira, 1987). Firms could also tap a risk-taker to overcome challenging circumstances such as intense market competition and/ or pre-succession firm strategic instability. In doing so, firms would invest more in R&D and take up leveraging strategies to improve their market position.

I, therefore, employ a logit model to predict the circumstances under which firms are more likely to hire successors with risk-taking gaps. My dependent variable, HIGH_GAP_INDEX_RISK, equals one if the firm has a GAP_INDEX_RISK greater than the median value of one and zero otherwise. Control variables include: product substitutability (SUBSTITUTABILITY) [43] as a proxy for market competitiveness; strategic instability (SI) and strategic difference (SD),[44] which measures pre-succession firm strategic conditions following Finkelstein and Hambrick (1990) and Zhang and Rajagopalan (2004); poor past performance (POOR_PRE_PERF) which indicates a firm's financial state prior to the succession event; total risk (STKVOL) to proxy for a firm's overall risk profile; dividend coverage (DIV_COVERAGE) and interest coverage (INTEREST_COVERAGE) to proxy for the firm's probability of experiencing a financial distress and potential bankruptcy; market-to-book (MTB) which represents a firm's growth potential and signifies its investment opportunities; firm size (SIZE) and firm age (FIRM_AGE); industry-median adjusted firm leverage (LEV_TDA_ADJ), industry-median adjusted capital expenditure (CAPEX_ADJ) and industry-median adjusted R&D intensity (RND_ADJ), all of which captures a firm's risk preference above its industry median that is captured by its current risk-taking policy choices. Last but not least, two corporate governance measures, board size (BOARDSIZE) and board independence (BOARD_IND) are included. The model includes firm and year fixed effects to control for unobserved heterogeneity across different firms and years.

Consistent with my earlier conjecture, the negative coefficient on DIV_COVERAGE suggests that firms with better ability to cover dividends (available profit) are less likely to experience a leadership change and tap successors with higher risk preference. Besides, firms with higher levels of pre-succession strategic instability (SI) have a greater probability of replacing their CEOs with a risk-taker. As suggested by the positive coefficient on BOARDSIZE, firms with a larger board prior to the succession event are more likely to choose candidates with a higher risk-taking propensity than their predecessors as indicated by their observable personal traits. I do not find evidence of firms trying to match the incoming CEOs with their risk preference (i.e. riskier firms tap successors with higher risk preference), as the coefficients on past stock return volatility

[43] I follow Karuna (2007) in using product substitutability as a proxy for market competition, since it gauges better the competition that an organization might face at the firm-specific level, rather than just at the industry level.

[44] I follow Finkelstein and Hambrick (1990) by using only four dimensions (i.e. plant and equipment newness, non-production overheads, inventory levels and financial leverage) to composite both strategic instability and strategic difference. This is due to a considerable amount of data missing in terms of advertising intensity and R&D intensity.

(STKVOL) and risk-taking policies (LEV_ADJ, CAPEX_ADJ and RND_ADJ) lack significance. These findings suggest that the increase in firm risk after appointing successors with higher risk-taking gaps occurs mainly through the act of imprinting (i.e. incoming CEOs imposing their idiosyncratic styles on the firms they lead) rather than matching (i.e. incoming CEOs are purposefully chosen by firms because of their specific attributes).

<Insert Table 3.11 here>

3.5. Conclusions

In this chapter, I investigate the relationship between CEO succession-induced risk-taking gaps and subsequent firm risk by taking into account both the underlying nature of the succession event and CEO personal risk-taking attributes. By using a PSM regression approach, the partial effect of succession-induced risk-taking gap index could be analysed by comparing post-succession firm risk with its matched peers (i.e. non-succession firms).

Focusing on a sample of S&P 500 companies spanning the period 1992 to 2016, this study finds that succession-induced risk-gap index leads to elevated levels of overall firm risk post-succession, especially when the succession was a forced turnover, was preceded by poor pre-succession performance, or when the incoming CEO was an external candidate. This suggests that the disruptive nature of succession provides those successors with risk-taking gaps to exercise greater discretion in imprinting their personal traits on subsequent firm risk.

My empirical findings are consistent with the theoretical prediction that riskier successor-induced policy choices would be expected when the event itself signals a change in firm policy or post-succession redirection. In this study, I find that succession-induced risk-taking gaps substantially lead to higher subsequent financial and operating leverage, higher R&D investments, lower capital expenditures, and increased firm focus when the succession is forced, past firm performance is poor, and when the incoming CEO is an outsider. These factors ultimately result not only in an increase in firm total risk but also an increase in systematic and idiosyncratic components of risk.

For any company operating in today's ever-changing business environment, it needs to take on risk in order to grow and develop. Risk management is often considered as an appendage to performance management and CEOs are increasingly assuming

powers and responsibilities that render them the most important individuals in driving an organization's decision-making process. As such, it is important for a firm to increase risk awareness with the board of directors and management, and try to identify a suitable candidate for the top leadership job in a succession context. My findings suggest that CEOs' personal risk-taking attributes in non-economic contexts have implications for business' risk-taking policies and overall firm risk. Based on the above empirical analysis, one policy implication is that firms can identify CEOs' risk propensity with a series of easily observable personal traits to supplement extrinsic contractually driven incentives with the choice of appropriate candidates who can deliver on the firm's strategic objectives.

Table 3. 1 Summary Statistics

This table presents summary statistics of the variables used in this paper spanning the period 1996-2016. Panel A provides comparisons of descriptive statistics between succession group and non-succession group, Panel B reports comparisons of descriptive statistics between forced succession and non-forced succession group, Panel C reports comparisons of descriptive statistics between poor pre-succession performance and good pre-succession performance group and Panel D reports comparisons of descriptive statistics between external succession and internal promotion group. The dependent variable, TE is the difference in subsequent firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) one year following the succession event. Firm risk-taking measures include: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market monthly returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows: I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm financial performance and stock return are lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. OUTSIDER takes the value of one if the successor was employed by the firm for less than one year before he/ she assumed office and zero otherwise. Firm Characteristic control variables include: profitability (ROA), firm size (SIZE), firm age (FIRM_AGE), market-to-book ratio (MTB), annual sales growth rate (SALES_GROWTH), book leverage (LEV_TDA), R&D (RND) and capital expenditure (CAPEX). CEO incentive control variables include: CEO pay-performance sensitivity (LOG_DELTA) and CEO risk-taking incentives (LOG_VEGA). Control variables definitions are provided in Appendix E. ∗, ∗∗, and ∗∗∗ denote significance at the 10%, 5%, and 1% level, respectively.

	Panel A: Succession (S) vs Non-Succession (NS) Group			Panel B: Forced Succession (F) vs Non-forced Succession (NF) Group			Panel C: Good Pre-Performance (GP) vs Poor Pre-Performance (BP) Group			Panel D: External Succession (O) vs Internal Promotion (I) Group		
	S	NS		F	NF		BP	GP		O	I	
Variable	Mean	Mean	Diff	Mean	Mean	Diff	Mean	Mean	Diff	Mean	Mean	Diff
POST_STKVOL	0.086	0.090	-0.004**	0.094	0.084	0.011**	0.095	0.083	0.012**	0.094	0.084	0.010**
POST_SYSVOL	0.041	0.042	-0.002	0.044	0.040	0.004	0.045	0.039	0.006*	0.043	0.040	0.003
POST_IDIO_STKVOL	0.078	0.083	-0.004**	0.085	0.077	0.008*	0.087	0.076	0.011**	0.091	0.075	0.016**
GAP_INDEX_RISK	0.768	0.000	0.768***	0.775	0.767	0.008	0.743	0.776	-0.033	0.753	0.772	0.019
FORCED	0.274	0.000	0.274***				0.437	0.218	0.219***	0.427	0.238	0.190***
POOR_PRE_PERF	0.253	0.205	0.048***	0.408	0.198	0.210***				0.315	0.239	0.075
OUTSIDER	0.188	0.000	0.188***	0.296	0.149	0.147***	0.234	0.173	0.061			
ROA	0.164	0.165	-0.001	0.147	0.170	-0.023***	0.120	0.178	-0.057***	0.145	0.168	-0.023**
SIZE	9.071	8.806	0.265***	9.351	8.982	0.368***	9.098	9.062	0.035	8.828	9.131	-0.303**
FIRM_AGE	4.042	3.859	0.184***	3.920	4.086	-0.166**	4.015	4.051	-0.036	3.938	4.068	-0.131
MTB	1.913	2.064	-0.152**	1.658	2.006	-0.349***	1.357	2.091	-0.733***	1.735	1.957	-0.222*
LEV_TDA	0.246	0.236	0.010	0.268	0.238	0.030**	0.257	0.242	0.015	0.262	0.242	0.020
RND	0.062	0.071	-0.009*	0.085	0.054	0.031**	0.075	0.058	0.017	0.082	0.057	0.025
CAPEX	0.055	0.058	-0.004*	0.048	0.057	-0.008**	0.044	0.058	-0.014***	0.047	0.057	-0.010**
SALES_GROWTH	0.081	0.151	-0.070***	0.032	0.099	-0.067***	0.036	0.096	-0.061***	0.099	0.077	0.022
LOG_VEGA	4.809	4.874	-0.065	4.982	4.772	0.210	4.804	4.811	-0.007	4.956	4.775	0.181
LOG_DELTA	5.759	6.427	-0.669***	5.747	5.772	-0.026	5.510	5.834	-0.324***	5.508	5.817	-0.309***
Observations	659	6482		179	475		167	492		124	535	

Table 3. 2 PSM Regression of Gap Index on Subsequent Firm Performance

Table 3.2 presents the results from PSM regression of CEO succession risk-taking gap index on subsequent firm risk. The dependent variable, TE is the difference in subsequent firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) one year following the succession event. Firm risk measurements include: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market monthly returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. Firm Characteristic control variables include: profitability (ROA), firm size (SIZE), firm age (FIRM_AGE), market-to-book ratio (MTB), annual sales growth rate (SALES_GROWTH), book leverage (LEV_TDA), R&D (RND) and capital expenditure (CAPEX). CEO incentive control variables include: CEO pay-performance sensitivity (LOG_DELTA) and CEO risk-taking incentives (LOG_VEGA). All regressions include firm and year fixed effects. Control variables definitions are provided in Appendix E. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Variable	Total Risk	Systematic Risk	Idiosyncratic Risk
GAP_INDEX_RISK	0.009*	0.003	0.008*
	(1.825)	(1.050)	(1.825)
ROA	0.111	0.032	0.120*
	(1.508)	(0.685)	(1.933)
SIZE	0.014	0.022**	0.010
	(1.004)	(2.564)	(0.855)
FIRM_AGE	-0.012	-0.013	0.023
	(-0.281)	(-0.466)	(0.646)
MTB	-0.007	-0.002	-0.005
	(-1.296)	(-0.500)	(-1.267)
SALES_GROWTH	0.005	0.002	0.006
	(0.872)	(0.590)	(1.319)
LEV_TDA	-0.057*	-0.036*	-0.033
	(-1.755)	(-1.752)	(-1.199)
RND	0.268***	0.042	0.286***
	(2.601)	(0.650)	(3.304)
CAPEX	-0.039	0.251**	-0.184
	(-0.228)	(2.315)	(-1.276)
LOG_VEGA	-0.000	-0.001	-0.000
	(-0.140)	(-0.798)	(-0.295)
LOG_DELTA	0.004	0.002	0.001
	(1.179)	(0.874)	(0.446)
Constant	-0.098	-0.163	-0.198
	(-0.448)	(-1.190)	(-1.086)
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.177	0.254	0.144

Table 3. 3 Interaction Effect of CEO Risk-Taking Gap Index and CEO Forced Removal on Subsequent Firm Risk-Taking

Table 3.3 presents the results from PSM regression for the interaction effect of CEO risk-taking gap index and CEO forced removal on subsequent firm risk. The dependent variable, TE is the difference in subsequent firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) one year following the succession event. Firm risk measurements include: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market monthly returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Firm Characteristic control variables include: profitability (ROA), firm size (SIZE), firm age (FIRM_AGE), market-to-book ratio (MTB), annual sales growth rate (SALES_GROWTH), book leverage (LEV_TDA), R&D (RND) and capital expenditure (CAPEX). CEO incentive control variables include: CEO pay-performance sensitivity (LOG_DELTA) and CEO risk-taking incentives (LOG_VEGA). All regressions include firm and year fixed effects. Control variables definitions are provided in Appendix E. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Variable	Total Risk	Systematic Risk	Idiosyncratic Risk
GAP_INDEX_RISK	-0.001	-0.004	-0.002
	(-0.229)	(-1.011)	(-0.433)
FORCED	0.006	-0.009	0.009
	(0.444)	(-1.038)	(0.759)
FORCED*GAP_INDEX_RISK	0.023*	0.025***	0.020*
	(1.683)	(2.892)	(1.712)
ROA	0.102	0.020	0.112*
	(1.377)	(0.429)	(1.811)
SIZE	0.010	0.020**	0.007
	(0.760)	(2.272)	(0.588)
FIRM_AGE	-0.012	-0.013	0.023
	(-0.288)	(-0.497)	(0.650)
MTB	-0.007	-0.002	-0.006
	(-1.349)	(-0.509)	(-1.336)
SALES_GROWTH	0.006	0.003	0.007
	(1.115)	(0.871)	(1.594)
LEV_TDA	-0.055*	-0.035*	-0.031
	(-1.698)	(-1.697)	(-1.133)
RND	0.278***	0.047	0.295***
	(2.706)	(0.730)	(3.437)
CAPEX	-0.030	0.255**	-0.174
	(-0.172)	(2.371)	(-1.218)
LOG_VEGA	-0.000	-0.001	-0.000
	(-0.111)	(-0.787)	(-0.262)
LOG_DELTA	0.005	0.002	0.002
	(1.285)	(0.990)	(0.562)
Constant	-0.066	-0.136	-0.170
	(-0.305)	(-0.994)	(-0.939)
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.190	0.269	0.162

Table 3. 4 Interaction Effect of CEO Risk-Taking Gap Index and Poor Past Performance on Subsequent Firm Risk-Taking

Table 3.4 presents the results from PSM regression for the interaction effect of CEO risk-taking gap index and poor past performance on subsequent firm risk. The dependent variable, TE is the difference in subsequent firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) one year following the succession event. Firm risk measurements include: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market monthly returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. POOR_PRE_PERF takes the value of one if the firm's pre-succession firm financial performance and stock return are lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. Firm Characteristic control variables include: profitability (ROA), firm size (SIZE), firm age (FIRM_AGE), market-to-book ratio (MTB), annual sales growth rate (SALES_GROWTH), book leverage (LEV_TDA), R&D (RND) and capital expenditure (CAPEX). CEO incentive control variables include: CEO pay-performance sensitivity (LOG_DELTA) and CEO risk-taking incentives (LOG_VEGA). All regressions include firm and year fixed effects. Control variables definitions are provided in Appendix E. t-statistics are reported in parentheses. ∗, ∗∗, and ∗∗∗ denote significance at the 10%, 5%, and 1% level, respectively.

Variable	Total Risk	Systematic Risk	Idiosyncratic Risk
GAP_INDEX_RISK	-0.002	-0.000	-0.003
	(-0.430)	(-0.082)	(-0.690)
POOR_PRE_PERF	-0.007	-0.006**	-0.001
	(-1.529)	(-2.114)	(-0.319)
POOR_PRE_PERF*GAP_INDEX_RISK	0.066***	0.019**	0.064***
	(5.145)	(2.333)	(5.998)
ROA	0.092	0.028	0.098
	(1.268)	(0.597)	(1.642)
SIZE	0.006	0.020**	0.002
	(0.436)	(2.348)	(0.143)
FIRM_AGE	-0.015	-0.014	0.021
	(-0.356)	(-0.518)	(0.609)
MTB	-0.008*	-0.002	-0.007*
	(-1.666)	(-0.643)	(-1.718)
SALES_GROWTH	0.006	0.002	0.008*
	(1.095)	(0.593)	(1.691)
LEV_TDA	-0.048	-0.034*	-0.024
	(-1.513)	(-1.648)	(-0.892)
RND	0.243**	0.033	0.263***
	(2.409)	(0.515)	(3.142)
CAPEX	-0.036	0.240**	-0.165
	(-0.214)	(2.220)	(-1.177)
LOG_VEGA	-0.000	-0.001	-0.000
	(-0.096)	(-0.775)	(-0.257)
LOG_DELTA	0.006	0.002	0.003
	(1.556)	(0.956)	(0.954)
Constant	-0.009	-0.137	-0.113
	(-0.043)	(-1.005)	(-0.638)
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.221	0.267	0.203

Table 3. 5 Interaction Effect of CEO Risk-Taking Gap Index and External Succession on Subsequent Firm Risk-Taking

Table 3.5 presents the results from PSM regression for the interaction effect of CEO risk-taking gap index and external succession on subsequent firm risk. The dependent variable, TE is the difference in subsequent firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) one year following the succession event. Firm risk measurements include: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market monthly returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. OUTSIDER takes the value of one if the successor was employed by the firm for less than one year before he/ she assumed office and zero otherwise. Firm Characteristic control variables include: profitability (ROA), firm size (SIZE), firm age (FIRM_AGE), market-to-book ratio (MTB), annual sales growth rate (SALES_GROWTH), book leverage (LEV_TDA), R&D (RND) and capital expenditure (CAPEX). CEO incentive control variables include: CEO pay-performance sensitivity (LOG_DELTA) and CEO risk-taking incentives (LOG_VEGA). All regressions include firm and year fixed effects. Control variables definitions are provided in Appendix E. t-statistics are reported in parentheses. ∗, ∗∗, and ∗∗∗ denote significance at the 10%, 5%, and 1% level, respectively.

	Total Risk	Systematic Risk	Idiosyncratic Risk
GAP_INDEX_RISK	-0.003	-0.002	-0.005
	(-0.609)	(-0.642)	(-1.171)
OUTSIDER	0.012	0.008	-0.002
	(1.370)	(1.372)	(-0.259)
OUTSIDER*GAP_INDEX_RISK	0.105***	0.048***	0.102***
	(7.984)	(5.570)	(9.356)
ROA	0.121*	0.036	0.129**
	(1.751)	(0.808)	(2.261)
SIZE	0.008	0.020**	0.005
	(0.653)	(2.347)	(0.480)
FIRM_AGE	-0.004	-0.009	0.032
	(-0.105)	(-0.351)	(0.953)
MTB	-0.009*	-0.003	-0.008**
	(-1.877)	(-0.853)	(-1.994)
SALES_GROWTH	0.004	0.002	0.005
	(0.752)	(0.474)	(1.266)
LEV_TDA	-0.051*	-0.033*	-0.027
	(-1.664)	(-1.660)	(-1.081)
RND	0.293***	0.057	0.289***
	(3.006)	(0.900)	(3.599)
CAPEX	-0.030	0.254**	-0.167
	(-0.185)	(2.421)	(-1.258)
LOG_VEGA	-0.000	-0.001	-0.000
	(-0.263)	(-0.930)	(-0.336)
LOG_DELTA	0.008**	0.004	0.005*
	(2.280)	(1.622)	(1.661)
Constant	-0.103	-0.165	-0.208
	(-0.505)	(-1.244)	(-1.234)
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.281	0.305	0.276

Table 3. 6 CEO Risk-Taking Gap Index and Subsequent Firm Risk-Taking Policies

Table 3.6 presents the results from PSM regression of CEO succession risk-taking gap index on subsequent firm risk-taking policies. The dependent variable, TE is the difference in firm risk-taking policies between the treatment firm (succession firm) and the matching group (non-succession matched peers) following the succession event. Firm risk-taking policy measurements include: (1) book leverage of total debt (LEV_TDA), defined as sum of the firm's debt in current liabilities and long-term debt scaled by book value of total assets, (2) book leverage of long-term debt (LEV_LDA), defined as book value of long-term debt scaled by book value of total assets, (3) market leverage of total debt (LEV_TDM), defined as sum of the firm's debt in current liabilities and long-term debt scaled by market value of total assets, (4) market leverage of long-term debt (LEV_TDM), defined as book value of long-term debt scaled by market value of total assets, (5) operating leverage (OPLEV), defined as the percentage change in firm's EBIT scaled by percentage in sales, (6) research and development (RND), defined as research and development expenditure scaled by total assets, (7) capital expenditure (CAPEX), defined as total capital expenditure scaled by total assets, (8) segment sales-based Herfindahl-Hirschman Index (HERF), defined as sum of square of business segment sales scaled by the square of firm total sales, and (9) number of business segments (NUM_SEG), defined as the number of business segments within which the firm operates. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm financial performance and stock return are lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. OUTSIDER takes the value of one if the successor was employed by the firm for less than one year before he/ she assumed office and zero otherwise. Firm Characteristic control variables (suppressed) include: profitability (ROA), firm size (SIZE), firm age (FIRM_AGE), market-to-book ratio (MTB), annual sales growth rate (SALES_GROWTH), book leverage (LEV_TDA) and lagged dependent variable one-year before the succession event happens. Corporate governance control variables (suppressed) include: board size (BOARDSIZE) and board independence (BOARD_IND). CEO incentive control variables (suppressed) include: CEO pay-performance sensitivity (LOG_DELTA) and CEO risk-taking incentives (LOG_VEGA). In the regressions using financial leverage and operating leverage as dependent variables, the control variable book leverage (LEV_TDA) is replaced with R&D intensity (RND). All control variables are at the time when the succession event takes place (time t). Panel A reports estimates of risk-taking gap index on subsequent firm risk-taking policies. Panel B reports estimates of the interaction effect of risk-taking gap index and forced removal on subsequent firm risk-taking policies. Panel C reports estimates of the interaction effect of risk-taking gap index and poor past performance on subsequent firm risk-taking policies. Meanwhile Panel D reports estimates of the interaction effect of risk-taking gap index and external succession on subsequent firm risk-taking policies. Control variables definitions are provided in Appendix E. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Variable	LEV_TDA	LEV_LDA	LEV_TDM	LEV_LDM	OPLEV	RND	CAPEX	HERF	NUM_SEG
Panel A: Risk-Taking Gap Index and Subsequent Firm Risk-Taking Policies									
GAP_INDEX_RISK	-0.004	-0.007	0.038**	0.024*	29.687***	0.020	0.003	-0.012	-0.063
	(-0.267)	(-0.533)	(2.324)	(1.847)	(2.850)	(1.633)	(0.966)	(-0.342)	(-0.096)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	371	371	357	357	366	370	493	493	493
R-squared	0.096	0.111	0.043	0.046	0.268	0.126	0.096	0.060	0.119
Panel B: the Interaction Effect of Risk-Taking Gap Index and Forced Removal on Subsequent Firm Risk-Taking Policies									
GAP_INDEX_RISK	-0.037*	-0.037**	0.001	-0.002	44.743***	-0.020	0.006*	-0.023	0.543
	(-1.794)	(-2.185)	(0.031)	(-0.106)	(3.520)	(-1.335)	(1.653)	(-0.537)	(0.683)
FORCED	-0.016	-0.041	-0.080**	-0.073**	3.721	0.061*	0.015*	-0.104	1.326
	(-0.365)	(-1.154)	(-1.999)	(-2.274)	(0.140)	(1.961)	(1.906)	(-1.140)	(0.797)
FORCED*GAP_INDEX_RISK	0.101**	0.110***	0.160***	0.123***	-45.139	0.079**	-0.020**	0.104	-2.763

	(2.246)	(2.974)	(3.711)	(3.548)	(-1.606)	(2.406)	(-2.325)	(1.046)	(-1.525)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	371	371	357	357	366	370	493	493	493
R-squared	0.108	0.126	0.067	0.067	0.273	0.166	0.103	0.061	0.122
Panel C: the Interaction Effect of Risk-Taking Gap Index and Poor Past Performance on Subsequent Firm Risk-Taking Policies									
GAP_INDEX_RISK	-0.025	-0.015	-0.003	-0.001	33.071***	0.009	0.004	-0.054	0.439
	(-1.420)	(-1.007)	(-0.191)	(-0.069)	(2.972)	(0.687)	(1.287)	(-1.391)	(0.622)
POOR_PRE_PERF	-0.012	-0.010	-0.018	-0.015	7.075	0.006	0.004	0.004	-0.243
	(-0.850)	(-0.837)	(-1.309)	(-1.341)	(0.779)	(0.590)	(1.478)	(0.149)	(-0.474)
POOR_PRE_PERF*GAP_INDEX_RISK	0.160***	0.054	0.303***	0.182***	-22.716	0.105***	-0.007	0.332***	-4.201**
	(3.316)	(1.353)	(6.844)	(5.034)	(-0.749)	(2.872)	(-0.843)	(3.206)	(-2.216)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	371	371	357	357	366	370	493	493	493
R-squared	0.113	0.114	0.119	0.089	0.269	0.139	0.099	0.072	0.125
Panel D: the Interaction Effect of Risk-Taking Gap Index and External Succession on Subsequent Firm Risk-Taking Policies									
GAP_INDEX_RISK	-0.033*	-0.023	-0.000	-0.002	30.743***	0.023*	0.005	-0.023	-0.075
	(-1.893)	(-1.585)	(-0.022)	(-0.154)	(2.799)	(1.776)	(1.617)	(-0.610)	(-0.107)
OUTSIDER	0.001	0.013	0.030	0.019	-1.147	0.045**	0.009*	-0.064	1.137
	(0.030)	(0.561)	(1.165)	(0.935)	(-0.064)	(2.151)	(1.756)	(-1.125)	(1.089)
OUTSIDER*GAP_INDEX_RISK	0.259***	0.143***	0.430***	0.293***	-9.827	-0.025	-0.019**	0.089	0.327
	(5.265)	(3.489)	(8.678)	(7.215)	(-0.313)	(-0.654)	(-2.088)	(0.817)	(0.163)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	371	371	357	357	366	370	493	493	493
R-squared	0.138	0.130	0.162	0.131	0.268	0.133	0.104	0.062	0.121

Table 3. 7 CEO Risk-Taking Gap Index and Subsequent Firm Risk-Taking, Controlling for CEO Overconfidence

Table 3.7 presents the results from PSM regression of CEO succession risk-taking gap index on subsequent firm risk. The dependent variable, TE is the difference in subsequent firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) one year following the succession event. Firm risk measurements include: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market monthly returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm financial performance and stock return are lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. OUTSIDER takes the value of one if the successor was employed by the firm for less than one year before he/ she assumed office and zero otherwise. Panel A reports estimates of risk-taking gap index on subsequent firm risk. Panel B reports estimates of the interaction effect of risk-taking gap index and forced removal on subsequent firm risk. Panel C reports estimates of the interaction effect of risk-taking gap index and poor past performance on subsequent firm risk. Meanwhile Panel D reports estimates of the interaction effect of risk-taking gap index and external succession on subsequent firm risk. The models include all control variables from Table 3.2 (suppressed) and OVERCONFIDENCE. Control variables definitions are provided in Appendix E. All regressions include firm and year fixed effects. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Variable	Total Risk	Systematic Risk	Idiosyncratic Risk
Panel A: Risk-Taking Gap Index and Subsequent Firm Risk			
GAP_INDEX_RISK	0.009*	0.003	0.008*
	(1.835)	(1.045)	(1.828)
OVERCONFIDENCE	-0.001	0.001	0.002
	(-0.233)	(0.163)	(0.410)
Other Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.182	0.251	0.145
Panel B: the Interaction Effect of Risk-Taking Gap Index and Forced Removal on Subsequent Firm Risk			
GAP_INDEX_RISK	-0.001	-0.004	-0.002
	(-0.214)	(-1.009)	(-0.414)
FORCED	0.007	-0.009	0.009
	(0.483)	(-1.040)	(0.731)
FORCED*GAP_INDEX_RISK	0.023	0.025***	0.020*
	(1.645)	(2.886)	(1.707)
OVERCONFIDENCE	-0.002	0.000	0.001
	(-0.401)	(0.144)	(0.204)
Other Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.195	0.266	0.162
Panel C: the Interaction Effect of Risk-Taking Gap Index and Poor Past Performance on Subsequent Firm Risk			
GAP_INDEX_RISK	-0.002	-0.000	-0.003
	(-0.413)	(-0.089)	(-0.683)
POOR_PRE_PERF	-0.006	-0.006**	-0.001
	(-1.408)	(-2.113)	(-0.301)
POOR_PRE_PERF*GAP_INDEX_RISK	0.066***	0.019**	0.064***

	(5.144)	(2.338)	(5.991)
OVERCONFIDENCE	-0.001	0.001	0.002
	(-0.139)	(0.222)	(0.528)
Other Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.225	0.264	0.204
Panel D: the Interaction Effect of Risk-Taking Gap Index and External Succession on Subsequent Firm Risk			
GAP_INDEX_RISK	-0.003	-0.002	-0.005
	(-0.608)	(-0.640)	(-1.155)
OUTSIDER	0.012	0.008	-0.002
	(1.403)	(1.374)	(-0.228)
OUTSIDER*GAP_INDEX_RISK	0.106***	0.048***	0.102***
	(8.025)	(5.544)	(9.319)
OVERCONFIDENCE	-0.002	0.000	0.001
	(-0.371)	(0.096)	(0.251)
Other Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.287	0.302	0.276

Table 3. 8 **CEO Risk-Taking Gap Index and Subsequent Firm Risk-Taking, Controlling for CEO Total Pay**

Table 3.8 presents the results from PSM regression of CEO succession risk-taking gap index on subsequent firm risk. The dependent variable, TE is the difference in subsequent firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) one year following the succession event. Firm risk measurements include: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market monthly returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm financial performance and stock return are lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. OUTSIDER takes the value of one if the successor was employed by the firm for less than one year before he/ she assumed office and zero otherwise. Panel A reports estimates of risk-taking gap index on subsequent firm risk. Panel B reports estimates of the interaction effect of risk-taking gap index and forced removal on subsequent firm risk. Panel C reports estimates of the interaction effect of risk-taking gap index and poor past performance on subsequent firm risk. Meanwhile Panel D reports estimates of the interaction effect of risk-taking gap index and external succession on subsequent firm risk. The models include all control variables from Table 3.2 (suppressed) and TOTAL_PAY. Control variables definitions are provided in Appendix E. All regressions include firm and year fixed effects. t-statistics are reported in parentheses. ∗, ∗∗, and ∗∗∗ denote significance at the 10%, 5%, and 1% level, respectively.

Variable	Total Risk	Systematic Risk	Idiosyncratic Risk
Panel A: Risk-Taking Gap Index and Subsequent Firm Risk			
GAP_INDEX_RISK	0.010*	0.003	0.008*
	(1.844)	(1.022)	(1.834)
TOTAL_PAY	0.000	-0.001	0.000
	(0.059)	(-0.276)	(0.080)
Other Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.182	0.251	0.143
Panel B: the Interaction Effect of Risk-Taking Gap Index and Forced Removal on Subsequent Firm Risk			
GAP_INDEX_RISK	-0.001	-0.004	-0.002
	(-0.177)	(-1.020)	(-0.424)
FORCED	0.006	-0.009	0.009
	(0.463)	(-1.046)	(0.758)
FORCED*GAP_INDEX_RISK	0.023*	0.025***	0.020*
	(1.665)	(2.881)	(1.713)
TOTAL_PAY	0.001	-0.001	0.001
	(0.107)	(-0.279)	(0.142)
Other Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.195	0.266	0.160
Panel C: the Interaction Effect of Risk-Taking Gap Index and Poor Past Performance on Subsequent Firm Risk			
GAP_INDEX_RISK	-0.002	-0.000	-0.003
	(-0.394)	(-0.098)	(-0.686)
POOR_PRE_PERF	-0.006	-0.006**	-0.001
	(-1.467)	(-2.123)	(-0.302)
POOR_PRE_PERF*GAP_INDEX_RISK	0.067***	0.019**	0.064***

	(5.209)	(2.309)	(6.022)
TOTAL_PAY	0.002	-0.001	0.002
	(0.322)	(-0.188)	(0.409)
Other Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.226	0.264	0.202
Panel D: the Interaction Effect of Risk-Taking Gap Index and External Succession on Subsequent Firm Risk			
GAP_INDEX_RISK	-0.003	-0.002	-0.005
	(-0.568)	(-0.658)	(-1.157)
OUTSIDER	0.012	0.008	-0.002
	(1.400)	(1.403)	(-0.223)
OUTSIDER*GAP_INDEX_RISK	0.106***	0.048***	0.102***
	(8.044)	(5.535)	(9.343)
TOTAL_PAY	-0.001	-0.002	-0.000
	(-0.169)	(-0.463)	(-0.105)
Other Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	645	645	645
R-squared	0.287	0.302	0.275

Table 3. 9 CEO Risk-Taking Gap Index and Subsequent Long-Term Firm Risk-Taking

Table 3.9 presents the results from PSM regression of CEO succession risk-taking gap index on subsequent long-term firm risk. The dependent variable, TE is the difference in three-year average firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) following the succession event. Firm risk measurements include: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market monthly returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm financial performance and stock return are lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. OUTSIDER takes the value of one if the successor was employed by the firm for less than one year before he/ she assumed office and zero otherwise. Panel A reports estimates of risk-taking gap index on subsequent firm risk. Panel B reports estimates of the interaction effect of risk-taking gap index and forced removal on subsequent firm risk. Panel C reports estimates of the interaction effect of risk-taking gap index and poor past performance on subsequent firm risk. Meanwhile Panel D reports estimates of the interaction effect of risk-taking gap index and external succession on subsequent firm risk. The models include all control variables from Table 3.2 (suppressed). Note that all the control variables now defined as the average value of each variable through time t+1 to t+3 following the succession event (time t). Control variables definitions are provided in Appendix E. All regressions include firm and year fixed effects. t-statistics are reported in parentheses. ∗, ∗∗, and ∗∗∗ denote significance at the 10%, 5%, and 1% level, respectively.

Variable	Total Risk	Systematic Risk	Idiosyncratic Risk
Panel A: Risk-Taking Gap Index and Subsequent Firm Risk			
GAP_INDEX_RISK	0.020***	0.016***	0.014**
	(2.926)	(3.000)	(2.480)
Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	390	390	390
R-squared	0.228	0.249	0.121
Panel B: the Interaction Effect of Risk-Taking Gap Index and Forced Removal on Subsequent Firm Risk			
GAP_INDEX_RISK	0.004	0.003	-0.004
	(0.471)	(0.442)	(-0.553)
FORCED	-0.033**	-0.023**	-0.028**
	(-2.553)	(-2.356)	(-2.556)
FORCED*GAP_INDEX_RISK	0.076***	0.058***	0.077***
	(4.546)	(4.562)	(5.533)
Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	390	390	390
R-squared	0.285	0.305	0.216
Panel C: the Interaction Effect of Risk-Taking Gap Index and Poor Past Performance on Subsequent Firm Risk			
GAP_INDEX_RISK	0.003	0.007	-0.004
	(0.441)	(1.226)	(-0.633)
POOR_PRE_PERF	0.003	-0.001	0.004
	(0.585)	(-0.185)	(1.104)
POOR_PRE_PERF*GAP_INDEX_RISK	0.079***	0.040***	0.086***
	(5.375)	(3.444)	(7.154)
Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	390	390	390

R-squared	0.311	0.282	0.280
Panel D: the Interaction Effect of Risk-Taking Gap Index and External Succession on Subsequent Firm Risk			
GAP_INDEX_RISK	-0.009	-0.004	-0.014**
	(-1.241)	(-0.725)	(-2.384)
OUTSIDER	0.018	0.015*	0.008
	(1.514)	(1.688)	(0.850)
OUTSIDER*GAP_INDEX_RISK	0.101***	0.068***	0.100***
	(7.520)	(6.559)	(9.074)
Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	390	390	390
R-squared	0.378	0.369	0.341

Table 3. 10 Two-Stage Least Square Regressions

Table 3.10 presents the results from two-stage least squares regression of CEO succession risk-taking gap index on subsequent firm risk. The dependent variable, TE is the difference in subsequent firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) one year following the succession event. Firm risk measurements include: (1) total risk (STKVOL), defined as the annualized standard deviation of monthly stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market monthly returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of monthly stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm financial performance and stock return are lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level. OUTSIDER takes the value of one if the successor was employed by the firm for less than one year before he/ she assumed office and zero otherwise. Panel A reports estimates of risk-taking gap index on subsequent firm risk. Panel B reports estimates of the interaction effect of risk-taking gap index and forced removal on subsequent firm risk. Panel C reports estimates of the interaction effect of risk-taking gap index and poor past performance on subsequent firm risk. Meanwhile Panel D reports estimates of the interaction effect of risk-taking gap index and external succession on subsequent firm risk. The models include all control variables from Table 3.2 (suppressed). Control variables definitions are provided in Appendix E. Regressions include year and firm fixed effects. t-statistics are reported in parentheses. ∗, ∗∗, and ∗∗∗ denote significance at the 10%, 5%, and 1% level, respectively.

	Total Risk		Systematic Risk		Idiosyncratic Risk	
Variable	1st Stage	2nd Stage	1st Stage	2nd Stage	1st Stage	2nd Stage
Panel A: Risk-Taking Gap Index and Subsequent Firm Risk						
GAP_INDEX_RISK		-0.019		-0.016		-0.030
		(-0.347)		(-0.553)		(-0.631)
NUM_CHILD	-0.153***		-0.153***		-0.153***	
	(-3.64)		(-3.64)		(-3.64)	
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	244	244	244	244	244	244
R-squared	0.317	0.198	0.317	0.337	0.317	0.088
Panel B: the Interaction Effect of Risk-Taking Gap Index and Forced Removal on Subsequent Firm Risk						
GAP_INDEX_RISK		-0.002		-0.021*		-0.006
		(-0.117)		(-1.844)		(-0.337)
FORCED* GAP_INDEX_RISK		0.122***		0.100***		0.097***
		(3.189)		(4.908)		(2.966)
NUM_CHILD	-0.502***		-0.502***		-0.502***	
	(-17.27)		(-17.27)		(-17.27)	
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	244	244	244	244	244	244
R-squared	0.852	0.400	0.852	0.498	0.852	0.361
Panel C: the Interaction Effect of Risk-Taking Gap Index and Poor Past Performance on Subsequent Firm Risk						
GAP_INDEX_RISK		0.025		0.004		0.013
		(0.682)		(0.204)		(0.439)
POOR_PRE_PERF* GAP_INDEX_RISK		0.142***		0.064***		0.142***
		(3.293)		(2.683)		(3.901)

NUM_CHILD	-0.205***		-0.205***		-0.205***	
	(-6.01)		(-6.01)		(-6.01)	
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	244	244	244	244	244	244
R-squared	0.568	0.376	0.568	0.452	0.568	0.364
Panel D: the Interaction Effect of Risk-Taking Gap Index and External Succession on Subsequent Firm Risk						
GAP_INDEX_RISK		0.025		0.004		0.013
		(0.715)		(0.191)		(0.457)
OUTSIDER* GAP_INDEX_RISK		0.141***		0.063***		0.140***
		(3.467)		(2.793)		(4.162)
NUM_CHILD	-0.204***		-0.204***		-0.204***	
	(-5.99)		(-5.99)		(-5.99)	
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	244	244	244	244	244	244
R-squared	0.566	0.430	0.566	0.481	0.566	0.431

Table 3. 11 Pre-Succession Firm-Level Determinant of CEO Risk-Taking Gap Index

Table 3.11 presents the results from the logit regression of firm conditions prior to the succession event on CEO succession risk-taking gap index. The dependent variable — HIGH_GAP_INDEX_RISK is constructed as follows. I add one point to GAP_INDEX_RISK if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk-taking gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. HIGH_GAP_INDEX_RISK equals one if the firm has a GAP_INDEX_RISK greater than the median value of 1 and zero otherwise. Control variables include: product substitutability (SUBSTITUTABILITY), strategic instability (SI), strategic difference (SD), poor past performance indicator (POOR_PRE_PERF), stock return volatility (STKVOL), dividend coverage (DIV_COVERAGE), interest coverage (INTEREST_COVERAGE), market-to-book (MTB), firm size (SIZE), firm age (FIRM_AGE), industry-median adjusted firm leverage (LEV_TDA_ADJ), industry-median adjusted capital expenditure (CAPEX_ADJ), industry-median adjusted R&D intensity (RND_ADJ), board size (BOARDSIZE) and board independence (BOARD_IND). Control variables are all measured in the year prior to the succession event. Regression includes firm and year fixed effects. Control variables definitions are provided in Appendix E. z-statistics are reported in parentheses. ∗, ∗∗, and ∗∗∗ denote significance at the 10%, 5%, and 1% level, respectively.

Variable	HIGH_GAP_INDEX_RISK
SUBSTITUTABILITY	-0.0571
	(-0.02)
SI	0.160*
	(1.77)
SD	-0.262
	(-0.80)
POOR_PRE_PERF	0.478
	(1.38)
STKVOL	2.094
	(0.41)
DIV_COVERAGE	-0.0702*
	(-1.79)
INTEREST_COVERAGE	-0.00236
	(-0.76)
MTB_LEV	-0.201
	(-0.63)
SIZE	-0.382
	(-0.61)
FIRM_AGE	0.602
	(0.26)
LEV _ADJ	0.0171
	(0.01)
CAPEX_ADJ	-0.528
	(-0.06)
RND_ADJ	-4.072
	(-0.65)
BOARDSIZE	0.190*
	(1.72)
BOARD_IND	-1.741
	(-0.95)
Firm Fixed Effects	Yes
Year Fixed Effects	Yes
Observations	687
Pseudo R-squared	0.087

Chapter 4 CEO Succession Gaps and Shareholder Reaction

4.1. Introduction

On 1st October 2018, General Electric saw a 7 percent surge in its share price, following the announcement that Danaher's former leader Lawrence Culp would replace its incumbent CEO John Flannery.[45] The strong positive stock price response suggests that the market regarded this CEO-shakeup as a move in the right direction for the struggling firm, and hence priced in the potential for the successor to now steer the firm along a profitable strategic direction by bringing in new ideas. In sharp contrast, Intel received a cold welcome from the market on 1st February 2019, following the appointment of its former CFO Robert Swan as the new CEO, a decision that was made against the wishes of the investors, not only because this was an internal appointment, but also because the successor had no technical background, which is deemed essential for a technology firm.[46] In a similar vein, Hewlett Packard's stock price slumped upon the appointment of a female successor, Meg Whitman, stemming from the common belief that a feminine leadership style characterized by empathy, effective communication and sharing of information and power, could only be effective at the mid-management levels and may not work effectively when serving as CEOs of S&P 500 companies.[47]

Unlike any other position in an organization, chief executive officers (CEOs) play a pivotal role in shaping the future of the firm (Brady & Helmich, 1984; Hambrick & Mason, 1984; Chaganti & Sambharya, 1987) and consequently the welfare of its stakeholders. CEO successions, unlike other lower level turnovers, will trigger a series of changes within the organization such as structural and strategic changes, top management team turnovers, and disturbance in traditional patterns of behavior and company norms (Friedman & Saul, 1991; Kesner & Sebora, 1994). As such, it is not surprising that CEO succession and the market's reaction around the succession event has been the subject of intense academic research in the finance and management literatures alike.[48]

My interest in studying the impact of a turnover-driven shift in corporate culture is motivated by the recent burgeoning literature that links CEO personal characteristics

[45] See online news article: https://www.businessinsider.com.au/ge-stock-price-ceo-larry-culp-contract-details-2018-10?r=US&IR=T

[46] See online news article: https://articles.marketrealist.com/2019/02/intel-stock-falls-on-q4-earnings-miss-and-new-ceo-announcement/

[47] See online news article: https://www.scpr.org/news/2011/09/22/29003/meg-whitman-become-new-ceo-hewlett-packard/

[48] Examples include: Reinganum (1985); Beatty and Zajac (1987); Furtado and Rozeff (1987); Warner et al. (1988); Weisbach (1988); Bonnier and Bruner (1989); Friedman and Singh (1989); Davidson III et al. (1990); Davidson III et al. (1993); Denis and Denis (1995); Borokhovich et al. (1996); Davidson III et al. (2001); Davidson et al. (2002); Rhim et al. (2006); Adams and Mansi (2009); He et al. (2014); Gangloff et al. (2016); Quigley et al. (2017).

to firm policy choices and performance. There is considerable literature that investigates how a CEO's past experience and characteristics translate into corporate policy choices.[49] Surprisingly, however, the literature has limited its attention to examining shareholders' reactions to different types of succession events (e.g. forced removals versus voluntary turnovers, planned versus unplanned successions, firms with poor versus good pre-succession performance, outsiders versus insiders, etc). To the best of my knowledge, almost none focuses on the price effects surrounding CEO succession announcements of the differences in personal traits between the predecessor and successor. Given that gaps in CEO personal traits brought about by a change in top leadership are likely to impact firm performance (i.e. Chapter 2) and risk (i.e. Chapter 3), a succession that induces such changes is likely to have a bearing on a firms' stock performance. Such associations between CEO personal traits/ experiences and stock returns are likely to provide boards with invaluable insight into hiring the right person to safeguard shareholders' interests.[50]

To address this, I propose and test hypotheses that relate succession-induced gaps in CEO traits to stock price response around the announcement using a sample of CEO successions in S&P 500 companies spanning the period 1992 to 2016. I construct an index of CEO characteristics (CEO gender, age, career variety, cultural background, highest education level, and social status ('eliteness') of undergraduate school) that have been individually shown to impact firm performance in prior literature. I construct the index by adding one point for every difference between the predecessor and the successor with regard to the aforementioned six attributes. Index values therefore range from zero to six, with zero indicating close alignment between the personal traits/ experiences of the successor and the predecessor while six suggests that the outgoing and incoming CEOs are totally different along these six dimensions. Succession firms were divided into High Gap and Low Gap groups where incoming CEOs are considered to have high succession gaps if the GAP_INDEX is greater than two (i.e. GAP_INDEX = 3/4/5/6) and zero otherwise (i.e. GAP_INDEX = 0/1/2). I employ an event study methodology to compute

[49] CEO military experience and firm risk-taking (Malmendier & Nagel, 2011; Benmelech & Frydman, 2015); CEO early-life experience and professional behaviors (Malmendier & Nagel, 2011; Custódio et al., 2013; Bernile et al., 2017); CEO fitness and firm profitability (Limbach & Sonnenburg, 2014); CEO golfing and firm performance (Biggerstaff et al., 2016); and pilot CEO and innovation (Cain & McKeon, 2016; Sunder et al., 2017).

[50] The change in stock price surrounding CEO succession events depends largely on market participants' perceptions of how well the predecessor did and how capable the successor is in taking the firm forward. As my central interest lies in the market's reactions to the CEO succession gaps, it makes more sense to focus on the date when market participants first identify who the incoming CEO is, rather than the date when the outgoing CEO announces his/ her departure or when the succession event actually happens. I am interested in the price effect of the shift in corporate culture that is brought about by the differences between the predecessor and the successor.

abnormal returns associated with the revelation of information regarding incoming CEOs with different levels of succession gaps.

My main findings can be summarized as follows.[51] In general, cumulative abnormal returns over the [-5,+5] event window were not statistically significant for firms with successions bringing in either High Gap or Low Gap successors. As my original sample is heterogeneous with reference to pre-event firm conditions, it is possible that the market reactions to a radical shift in CEO characteristics differ across subsamples but get annulled in a portfolio analysis. To address this possibility, I next disaggregate the original sample into firms that were the subject of a turbulent environment leading up to the succession event (i.e. forced successions and/ or successions following poor performance) and those that were not (i.e. non-forced successions and/ or successions following good performance). Consistent with conjecture, I find that the market reacts favorably to successors with high gaps only under forced successions and when successions follow poor firm performance with the magnitude of CARs for the High Gap group under forced succession (poor pre-performance) being 2.64% (4.35%). Although the revelation of tapping successors sharing similar personal traits under forced removals is also associated with positive abnormal returns, the magnitude of cumulative abnormal returns (CAR) over the eleven-day event window is just half of what is produced by appointing successors with high succession gaps, and the CARs diminish after three days following the revelation date.

On the contrary, non-forced successions and successions following good performance are not associated with any abnormal returns regardless of the level of CEO succession gaps, as such events do not provide investors with any new information about firm future perspectives. Similarly, I do not find any abnormal returns associated with the revelation of low succession gaps following poor performance as such events do not signal future firm structural and/ or strategic changes. Overall, I find that investors tend to only respond to high CEO succession gaps when the event is disruptive in nature. Empirical findings in this study have strong implications for how firms use succession events as an investor management tool. Particularly, my findings suggest that under forced successions or when pre-succession performance has been poor, appointing successors with drastically different personal traits could be exploited by the firm to restore shareholder confidence.

[51] The interpretation of my results are largely based on [-5,+5] unless stated otherwise.

My research is associated with the growing body of literature that examines the price effect of CEO successions and the associated implications for firms' hiring decisions. There has been prior literature on market reactions to changes in individual CEO characteristics, such as CEO gender (Lee & James, 2007; Martin et al., 2009) and age (Serfling, 2014; Eduardo & Poole, 2016). However, no one has looked at market reactions to a comprehensive set of differences between the outgoing and incoming CEOs. To the best of my knowledge, this is the first paper that examines the price effect of the revelation of CEO succession gaps by considering the combined effect of different aspects in CEO characteristics between the predecessor and successor simultaneously in a succession context. This is also the first paper that looks at the date of the revelation of incoming CEOs' identity and the associated succession gaps, rather than the official announcement date of successions and/ or the actual date when succession events takes place.

4.2. Hypothesis Development

Since the Efficient Market Hypothesis suggests that stock prices reflect all publicly available information, revelation of new information will trigger an update in beliefs (Fama, 1991) and a consequent change in stock prices at the announcement.[52] Among the studies that examine announcement returns around events, the historical debate over how investors react to CEO succession enjoys a well-trodden path and there is a growing literature built around the CEO succession topic. For example, Worrell and Davidson III (1987) examine the price effect of CEO sudden deaths and asserts that the market favors internal promotion than external successions. Hayes and Schaefer (1999) observe an average of -1.51% abnormal returns associated with CEO-initiated successions, and an average abnormal return of +3.82% for firms following CEO sudden deaths. They argue that CEOs who resign to accept similar positions outside their current

[52] For example the market responds either positively or negatively to events such as dividend announcements (Healy & Palepu, 1988; Michaely et al., 1995; Yoon & Starks, 1995; Lonie et al., 1996), share repurchases (Lakonishok & Vermaelen, 1990; Grullon & Michaely, 2004), seasoned equity offerings (Smith Jr, 1986; Corwin, 2003), share splits (Lamoureux & Poon, 1987; McNichols & Dravid, 1990), debt issuance (Smith Jr, 1986; Shyam-Sunder, 1991; Akhigbe et al., 1997), earnings surprises (Ball & Kothari, 1991; Greene & Watts, 1996; Kothari, 2001; Vega, 2006), restatements (Callen et al., 2006; Neuhierl et al., 2013), M&A (Franks et al., 1991; Andrade et al., 2001; Capron & Pistre, 2002; Moeller et al., 2005; Cai & Sevilir, 2012), spin-offs (Hite & Owers, 1983; Schipper & Smith, 1983; Veld & Veld‐Merkoulova, 2009), product-related news (Woolridge & Snow, 1990; Chaney et al., 1991; Austin, 1993; Bosch & Lee, 1994; Barber & Darrough, 1996), customer- and partnership-related news (McConnell & Nantell, 1985; Woolridge & Snow, 1990; Neuhierl et al., 2013), lawsuits (Bhagat et al., 1994; Bizjak & Coles, 1995; Griffin et al., 2004), company awards (Hendricks & Singhal, 1996), initial public offering (Ritter & Welch, 2002), executive sudden deaths (Johnson et al., 1985; Worrell et al., 1986; Bennedsen et al., 2006; Borokhovich et al., 2006; Salas, 2010) and others (McConnell & Muscarella, 1985; Cooper et al., 2001; Goyal et al., 2002; Brooks et al., 2003; Barnett & King, 2008; Pettus et al., 2009).

companies possess stronger management abilities and more intense human capital than CEOs who experience sudden death. Shen and Cannella Jr (2003) find that the market does not react to the initiation of relay successions – the appointment of an heir apparent. They argue that the market reacts positively to heir promotion when firm performance has been good and/ or heir exit when performance has been bad, whilst responding negatively to heir promotion when firm performance has been poor and/ or heir exit when firm performance has been good. They also find evidence of positive abnormal returns following outsider successions and negative stock market reactions to non-heir insider successions.

Tian et al. (2011) observe positive market reaction to successors with more intensive human and social capital. Elsaid et al. (2011) find evidence of positive market reactions to incoming CEOs with past CEO experience. Intintoli (2013) shows that marathon succession announcements under forced removals are generally associated with positive cumulative abnormal returns. He et al. (2014) use data on Chinese publicly listed firms and claim that market participants favor incoming CEOs with stronger political connections, and the results are stronger for outsider successors, poorly performing firms, firms not belonging to the high-tech industries, firms located in less developed regions, and privately controlled firms. As such, market reactions to CEO succession events depend on many factors and it would be difficult to assess investors' perceptions on leadership changes without distinguishing between different situations.

In this paper, I seek to look at investors' reactions to successors who differ drastically from their predecessors given the varied organizational contexts (i.e. forced versus non-forced successions, and successions following poor versus good pre-succession performance). Under non-forced successions or when pre-succession financial performance has been good, the succession process tends to be smooth and organized, and there is a premium on continuity (Friedman & Singh, 1989; Shen & Cannella, 2002). Regardless of the level of succession gaps, incoming CEOs under such circumstances are not expected to initiate any changes and will therefore have little discretion in altering firm directions. Non-forced turnovers and successions following good prior performance as a whole do not provide investors with any new information regarding how this change could take the business forward. As such, I expect investors will not react under such circumstances. This leads to my first hypothesis:

H1*: Under non-forced successions, or when pre-succession firm performance has been good, the announcement of a CEO change with gaps in personal traits will not impact the abnormal returns around the succession announcement.*

However, under forced succession or when pre-succession financial performance of the company has been poor, things could be different. Past literature suggests that, compared to other types of successions, forced successions represent the greatest probability of adaptive strategic changes (Friedman & Singh, 1989), especially when the successor differs considerably from his/ her predecessor. However, it is also possible that forced removals could have stemmed from political turmoil within the organization (Friedman & Singh, 1989). If the change in leadership cannot be justified by the predecessor's failure to act in the best interests of the firm, then it is highly likely that the incoming CEO with high succession gaps may not be welcome.

Several papers have examined stock performance in the context of forced successions. For instance, Denis and Denis (1995) assert that forced management resignations are preceded by negative abnormal stock performance whilst enjoying positive market reactions following the announcement. In contrast, voluntary retirements are not associated with any abnormal stock performance both before and after management changes. Huson et al. (2004) find evidence of substantial shareholder wealth losses in the three-year pre- and post-succession window for forced removals, while three-year abnormal returns preceding and post non-forced successions are not statistically different from zero. Although the evidence is inconclusive, previous findings do indicate that market participants react differently to forced successions versus non-forced successions.

Another situation that is likely to elicit varying stock market response surrounding the succession events is prior firm performance. Studies in the past have asserted that poor pre-succession performance is associated with greater probabilities of CEO turnovers (Brady & Helmich, 1984; Coughlan & Schmidt, 1985; Schwartz & Menon, 1985; Warner et al., 1988; Weisbach, 1988; Kesner & Dalton, 1994; Parrino, 1997). Farrell and Whidbee (2002) observe that firms experiencing forced-succession are more closely monitored by *The Wall Street Journal* (WSJ) and are subject to increased news frequency about 'bad decisions' and/ or poor performance up to two years prior to CEO successions. They argue that greater scrutiny of poor performance by the financial press would actually increase the probability of forced removals. Jenter and Kanaan (2015) not only assert that CEOs face a greater risk of being fired when the firm does poorly when

compared to its rivals, they also contend that poorly performing CEOs are much more likely to be dismissed following poor industry and market performance even if they have little control over the factors leading to the performance decline. Their findings indicate that company boards fail to filter out observable exogenous shocks that might affect firm performance and mistakenly blame their CEOs for poor firm performance that is driven by an industry/ economic downturn. There are, however, a small number of studies such as Samuelson et al. (1985), asserting that the relationship between a firm's prior performance and the probability of managerial change is inconclusive given that the mixed results produced using different performance measures.

Apart from studying the relationship between poor past performance and the probability of top management change, past literature also sheds light on the price effect of poor performance preceding CEO successions. Friedman and Singh (1989) find that the market reacts positively when pre-succession performance has been poor and under the condition that the succession events are either board- or CEO-initiated, while a negative market reaction is observed when pre-succession firm performance has been good. Lubatkin et al. (1989) find that investors react favorably to external successors when performance leading up to the succession has been poor. Similarly, Davidson III et al. (1993) assert that CEO successions near bankruptcy are generally associated with positive abnormal returns, and the positive effect is more pronounced around appointment of outsider successors. These studies collectively suggest that pre-succession firm performance wields a significant influence on the market's reaction to the succession.

There are at least three theoretical hypotheses regarding investors' perception on CEO succession gaps under such circumstances. First, the *Scapegoating Hypothesis*, states that a succession event is a method for providing a target when firm performance declines (see, for e.g., Gamson and Scotch (1964); Mirrlees (1976); Holmstrom (1979); Rowe et al. (2005), among others). As suggested by the model in Kim (1996), all managers generally possess equivalent skills and talents, and that they are highly fungible. Under such circumstances, firm performance is considered to be the product of random factors called 'pure luck' and management efforts. Managers, therefore, are at risk of being replaced if they fail to deliver full effort to manage their firms. Barker III and Patterson Jr (1996) in their study assert that top managers who are scapegoated are often replaced by someone sharing similar views who would eventually maintain the status quo. As such, when successors have relatively low levels of succession gaps under forced successions or successions following poor performance, CEO succession events are seen

to be used by the firm as an investor management tool. Such events fail to signal any management quality improvements and provide no new information to market participants on firm future prospects, and would therefore be associated with no abnormal returns. Forced removals or successions following poor performance, under the scapegoat hypothesis, are used by boards to give the investing public an illusion that a change in leadership will turn around the company.[53] The visibility of a scandal and the public perception of mismanagement should act as a threat to executive office holders, and thus create opportunities for appointments of CEOs with succession gaps. Therefore, the hiring of CEOs with succession gaps might merely be symbolic, especially under the aforementioned two circumstances. If investors are perceptive enough to see through the firm's intentions, then there should be no abnormal returns associated with forced successions or successions following poor performance, no matter how different the incoming CEO is from the departing CEO.

Second, the *Information Hypothesis* (the information effect), suggests that forced removals or successions following poor performance serve as an indication of internal instability, bad management choices, and the firm in a worse state than what the market had already built into their expectations. Picking a successor who is drastically different from his/ her predecessor would actually strengthen such thoughts among investors and hence, negative abnormal returns would be expected following the revelation of CEO succession gaps under forced removals or when pre-succession performance has been poor (see, for e.g., Bonnier and Bruner (1989) and Huson et al. (2004).

Finally, the *Ability Hypothesis* (the real effect), argues that succession events serve as a means to breaking the past momentum within an organization, and successors with gaps are more likely to ascend to leadership positions, especially under unstable or turbulent conditions (Ryan & Haslam, 2005; Haslam & Ryan, 2008). When company performance improves, traditional hiring and promotion norms that have historically tended to favor successors with similar characteristics would be expected. In contrast, a crisis (deteriorating organizational performance, plummeting stock price, fraud, scandal, restatement of financial statements, etc.) could provide opportunities for firms to break away from the current enterprise habitus and alter hiring and promotion practices (Reskin

[53] For instance, a firm's corporate social responsibility may be called into question following a scandal. As a response, female executives may be installed strategically as a signal that the firm is attempting to become more 'socially responsible' (Brady et al., 2011). Skaggs (2009) also asserts that after a racial discrimination lawsuit, firms respond to external pressure by becoming disproportionately more likely to promote African-Americans into management positions.

& McBrier, 2000; Khurana, 2004). Under this hypothesis, CEO abilities and skillsets are different from one another and are not directly observable. Boards act in the best interests of their shareholders and look for the most suitable candidate. Successors with high succession gaps, therefore, are expected to be more competent than their predecessors, especially when there is documented evidence of poor performance under the departing CEO's leadership. Moreover, CEOs with high succession gaps are more likely to initiate structural and strategic changes within the organization, which is closely in line with shareholders' interests. As a result, positive market reaction would be expected following the revelation of CEO succession gaps under forced removals or when the firm suffered deteriorating performance.

When the information on the extent of CEO succession gaps is being revealed, I expect scapegoating, information effect, and real effect, will all play a role in determining investors' reactions to succession event. The scapegoating effect will be associated with no abnormal returns when market participants feel that tapping an incoming CEO with high succession gaps is simply a means to scapegoat the outgoing CEO. The 'information effect', on the other hand, will result in negative abnormal returns around the revelation of CEO succession gaps, as the event itself signals to investors that the firm is performing worse and is experiencing higher levels of organizational instability than the market has anticipated. Finally, the 'real effect' will produce positive abnormal returns, as the market expects the incoming CEO to possess greater level human capital than the outgoing CEO. As my sample consists of S&P 500 companies which are heavily followed by analysts, I expect that the degree of information asymmetry is relatively low (Frankel & Li, 2004). Therefore, the information effect will have little effect on investor reactions. Because forced removals and CEO successions following poor performance generally align with shareholders' interests (Warner et al., 1988), especially in S&P 500 firms whose boards are much more effective when compared to other firms, market reactions to high CEO succession gaps under such circumstances are expected to be generally positive. This leads to my second hypothesis:

H2*: Under forced successions or when pre-succession performance has been poor, CEO succession gap will exert a positive effect on firm's cumulative abnormal returns.*

4.3. Research Design

4.3.1. Data

My starting sample comprises all S&P 500 firms between 1992 and 2016. CEOs' basic information (including name, gender, age, stock ownership, compensation structure, and tenure) was extracted from Compustat's ExecuComp database. Additional demographic information (including career history, education background, and cultural background) was hand-collected from the S&P Capital IQ database, Bloomberg's online executive profile webpage, NNDB.com, Ancestry, and Wikipedia in the last instance. The classification of succession events into forced and non-forced follows the method described in Parrino (1997), which has been widely adapted in recent CEO succession studies (Huson et al., 2004; Hazarika et al., 2012; Guo & Masulis, 2015; Jenter & Kanaan, 2015).[54] The demographic information on S&P 500 top executives was then merged with Compustat's annual fundamental data and BoardEx's Director and Director Legacy database, with the latter containing information on board size and board independence. I dropped financial services firms and utilities from the sample (two-digit SIC Code 60-69 and 49) given that firms in these sectors are heavily regulated which may lead to performance and risk outcomes and therefore shareholder reactions following a succession that differs from those of non-regulated companies for reasons not necessarily related to the variable of interest. I also excluded all cases followed by merger & acquisition or spin-offs, since it is difficult to separate the impact of leadership change from a major organizational restructure on shareholder reactions under the succession context. After dropping firms without the CEO's full name in the given fiscal year, the final sample contains 7,141 firm-year observations.

4.3.2. Variable Construction

To construct my primary explanatory variable, a measure for the succession-induced gap in CEO characteristics, I draw upon prior literature which has demonstrated that firm performance and shareholder reactions following CEO successions are affected

[54] Related news articles, whether published in the mainstream media or industry-specific journals and magazines, were retrieved through Factiva. The classification takes the following steps: (1) if the press clearly states that the outgoing CEO is forced out, being fired by the board of directors, or the departure is caused by policy differences or pressure imposed by stakeholders, then the succession event is classified as forced. (2) All other departures for CEOs above and including age 64, succession events caused by death or health-related disability and CEO-initiated successions are classified as non-forced. (3) Departures for CEOs under 64 are re-examined further and classified as forced if there are no signs of decease or health-related disability announced by the press, the press does not report an acceptance of another position (either external positions or chairmanship of the company's board) by the outgoing CEO, or the press does not announce the retiring of the predecessor at least six months before the event. (4) If a CEO serves as interim CEO and is replaced later, I classify it as non-forced. (5) Cases classified as forced are reclassified if the reports convincingly state that the succession event has nothing to do with the company's activities.

by the following: CEO's gender, age, career variety, cultural background, highest education level, and social status (eliteness) of undergraduate school. First, as suggested by Adams and Funk (2012), women on boards of publicly listed companies emphasize different values such as female directors are generally more open to change and less conservative than both male directors and women in the general population. Moreover, female directors are particularly stakeholder-oriented (Adams et al., 2011; Matsa & Miller, 2013). Carol (1982) documents that men tend to address rules, justice, and individual rights when considering moral dilemmas whereas women are more likely to consider the impact of relationships when facing such issues. However, a feminine leadership style characterized by empathy, effective communication, and sharing of information and power could be effective in mid-level management, but may not necessarily work when serving as CEOs of large companies. Past literature has produced conflicting evidence with regard to the market's perception of female CEO appointments. For example, Lee and James (2007) find evidence that investors react negatively to female successors, and the negative effect becomes more evident when the female CEO is appointed outside of the company. On the other hand, Kang et al. (2010) assert that the market reacts positively to women appointed to director positions in Singapore public-listed firms. Furthermore, they argue that investors respond differently to different positions; the appointment of female independent directors provokes the strongest response while appointment of female CEOs causes minimal reactions amongst all top leadership positions. Martin et al. (2009), however, claim that the market does not react differently between male and female successors. To further examine the price impact of gender gap in my study, I create a dummy variable, GENDER_GAP, which takes the value of one if there is a gender difference between the predecessor and successor, and zero otherwise.

Second, I argue that the age difference between the predecessor and successor would impact on firm value since younger CEOs emphasize things differently compared to older managers. Previous studies provide contradictory theoretical predictions on how CEO age would influence business performance resulting in abnormal stock returns surrounding CEO successions. Younger CEOs are more energetic in terms of their physical and mental states (Child, 1974) and subsequently, are more capable of grasping new ideas and learning new behaviors (Chown, 1961). Moreover, younger managers tend to be less risk-averse as they put less emphasis on career and financial security (Barker & Mueller, 2002). Also, innovative and risky strategies are more likely to be considered

by young leaders (Serfling, 2014) leading to higher growth and variability in profitability compared with their older counterparts in the same industry (Hambrick & Mason, 1984).

On the other hand, younger leaders may be more conservative and may not deviate from industry benchmarks since they have greater reputational and job concerns at stake (Hirshleifer & Thakor, 1992; Zwiebel, 1995; Holmström, 1999). Chevalier and Ellison (1999), and Hong et al. (2000) find evidence that due to a more sensitive termination-performance relationship, younger managers are less encouraged to take on unsystematic risk, and generally tend to exhibit higher levels of career concern-motivated herding behavior. In addition, older CEOs may have higher intellectual capabilities and make corporate policies based on experience, skills, and knowledge gained from the position and/ or advanced education (Sitthipongpanich & Polsiri, 2015). Literature shows that investors take CEO's age into consideration when they build their expectations on future firm performance. Cline and Yore (2016) claim that the market reacts positively to the increase in the departing CEO's age - a one standard deviation increase in the predecessor's age is associated with a 1.30% increase in cumulative abnormal returns over the five days [-2,+2] surrounding the announcement. Serfling (2014) takes a step further by looking at the age difference between predecessors and successors and shows that firms with lower stock return volatility and/ or higher levels of diversification (i.e. firms that have less tendency to take on risk) generally receive a warm response from the stock market when they hire younger CEOs. To test for this effect, I calculate the standard deviation of the age distribution of all CEO in my sample and create a dummy variable AGE_GAP which takes the value of one when there are at least two standard deviations of age difference between the predecessor and the successor, and zero otherwise.[55]

Third, career variety can also impact on firm value, since it represents personal biases favoring experimentation and change and is positively related to personality traits such as extraversion and openness to new experiences (Judge et al., 2002; Judge et al., 2004). A multi-industry career experience could possibly contribute to future feasible strategic and social novelty within a company and thereby direct the firm down innovative paths. However, replacing an 'industry specialist' with a 'general manager' might not necessarily be beneficial, since job hopping could result in superficial cognitive breadth instead of deep proficiency. In addition, too much variety in a career may be positively

[55] In my case, there is an age gap if the predecessor is at least 13.84 years older or younger than the successor. My definition of age gap is consistent with the definition offered by Serfling (2014): 'successors are 13 to 40 years younger than incumbents' as 'much younger' and 'successors are 6 to 12 years younger than incumbents' as 'younger'.

related to a person's degree of anxiety, avoidance of commitment, and/ or lack of contentment (Mowday & Spencer, 1981; Barrick & Mount, 1996; Judge & Bono, 2001).

Davidson et al. (2002) find evidence that the market reacts favorably to outsider successors coming from related industries when compared to those who have no previous industry experience. Also, Custódio and Metzger (2013) find that acquirer CEOs who possess extensive experience in target firms' industries enjoy higher abnormal returns around M&A announcements. It, therefore, appears that a CEO's career history indeed plays an indispensable role in affecting shareholders' perceptions of a company's business decisions. As such, the price impact of the difference between the predecessor and the successor's career variety would be non-negligible. To test for this, I create a dummy variable, CAREER_VARIETY_GAP, which takes the value of one if either one of the outgoing and the incoming CEOs is a 'general manager' (i.e., had previously worked in another GICS sector and/ or moved across different functional areas), while the other one is an 'industry specialist' (had spent his/ her entire career in one industry and/ or even in just one company), and zero otherwise.

Fourth, CEOs with different ethnicities or cultural backgrounds may see things differently compared to CEOs born and raised in the United States, especially regarding knowledge of global markets and generally the skills required under different cultural settings. Similar to career variety, cultural variety also helps to shape managers' cognitive map and generally conveys an experiential stock which the CEO could draw upon. In addition, multicultural experience has been shown to be positively associated with creativity (Maddux & Galinsky, 2009; Tadmor et al., 2009). On the other hand, Graham et al. (2013) argue that compared with their native American counterparts, non-US CEOs are more conservative when referring to sure losses, less optimistic, and less willing to take chances. Furthermore, the potential clash between global economic interests and local political interests and the loss of connection to local political parties/ suppliers/ business partners could be challenging when a non-US CEO takes charge of the firm. Assuming that price reactions following the revelation of the successor's identity signal market participants' beliefs about the successor's potential to take the firm forward, a change in cultural background in the top leadership becomes significant with regard to investors' reaction to CEO successions. I capture this effect through a dummy variable, CULTURAL_GAP, which equals one if either one of the predecessor or the successor is a native American and the other is not born and raised in the U.S., and is set equal to zero otherwise.

Finally, the last two attributes regarding the quality of education serve as components of a person's cognitive ability and are a signal of a person's ability to persevere in challenging intellectual activities. I differentiate between high education gap from the 'eliteness' education gap given that the former gap measure emphasizes the difference between knowledge base and mind-set, while the latter emphasizes social capital. Bhagat et al. (2010) finds evidence that the market reacts favorably to CEOs with stronger education qualifications. Similarly, based on a sample of U.S. publicly-listed banks spanning the period 1992 to 2011, King et al. (2016) finds that CEOs with MBA and CEOs graduating from top-20 U.S. universities outperform their counterparts. Kish-Gephart and Tochman Campbell (2015) postulate that for CEOs with highly placed parentage, an elite education makes them better connected to people across different industries, gives them exposure to new business opportunities, and provides easier access to cutting-edge technologies which encourages risk-taking behavior. Their assertion is consistent with Cao et al. (2015) who assert that while both internal and external social capital matters, CEOs' outside connections ('bridging capital') function better than their internal network ('bonding capital') in promoting entrepreneurial innovation and firms' strategic risk-taking. Moreover, wider connections create a safety net for potential failure, which allows CEOs to take on more risks and therefore influence subsequent firm performance.

Conversely, Antonakis et al. (2017) document that CEOs with high IQs tend to implement less effective leadership methods, and generally exhibit poorer transformational and instrumental leadership skills. Furthermore, CEOs with lower education qualifications would over-compensate through superior performance when compared to their counterparts with more prestigious education backgrounds. A higher education profile may make it easier for someone to win a CEO slot due to a stronger social network and the board's perception of a superior education as an appropriate proxy for managerial ability. Executives with no advanced degree, however, must work their way up through a hierarchy in a process that does better at weeding out good CEOs from bad than any other superior education ever could. As such, I create two dummy variables associated with CEO education background, the first HIGHEST_EDUCATION_GAP, has four levels: I set 'level' to zero if the CEO does not attend university or college, to one if the CEO's highest qualification is 'LLB/ Bachelor', to two if the CEO has 'LLM/ Master/ MBA' degree, and to three if he/ she has achieved a qualification of 'Juris Doctorate/ PhD'. HIGHEST_EDUCATION_GAP takes the value of one if there is a

difference in the level of education qualification between the predecessor and the successor. The second dummy, ELITE_EDUCATION_GAP, takes the value of one if either one of the predecessor's or successor's undergraduate school is in the top-20 list of the Best National/ Global University rankings as defined by U.S. News & World Report's 2016 rankings, while the other's undergraduate school does not feature on the list.[56]

I divided all succession firms into High Gap and Low Gap groups by creating the HIGH_GAP dummy according to the GAP_INDEX (Mean: 1.82; Median: 2), where HIGH_GAP equals one if the firm has a GAP_INDEX greater than two (i.e. GAP_INDEX = 3/4/5/6) and zero otherwise (i.e. GAP_INDEX = 0/1/2).

I further distinguish CEO succession events into forced/ non-forced and those with poor/ good prior performance. The first is a dummy variable, FORCED, that equals one if the predecessor was forced out (board-initiated succession) and zero otherwise (customary, CEO-initiated, or death/ health-related disability-initiated succession). The second variable, POOR_PRE_PERF, is a dummy variable that takes the value of one if the firm's pre-succession firm performance is poorer than its two-digit SIC code industry median and zero otherwise. Out of 659 succession events, 179 are forced turnovers (27.2%)[57] and 309 are turnovers characterized by pre-succession firm performance below the industry median (46.9%). According to hypotheses, I expect positive CARs in successions where the outgoing CEO is forced out and/ or when the succession was preceded by poor firm performance, more so in successions involving high levels of gaps in personal traits. No market response is expected for non-forced successions and/ or in firms that enjoy good performance prior to the change of leadership, especially when the successor is very similar to his/ her predecessor in terms of visible personal traits.

Compustat only provides the date on which the predecessor leaves as CEO (LEFTOFC) and the date on which the successor takes charge (BECAMECEO). As such, the information provided is not sufficient for me to conduct the analysis. Since the focus of my research is on market participants' response to succession gaps between the predecessor and the successor, the date when market participants first know who the

[56] I use the latest U.S. News & World Report university rankings, as top-20 national/ global university rankings largely remain stable over time. (e.g., U.S. News National University Rankings) spanning the period 2008–2015. These can be found at the following URL: http://publicuniversityhonors.com/2015/06/13/u-s-news-national-university-rankings-2008-present/).

[57] The forced turnover ratio is close to that reported by Zhang and Rajagopalan (2004) for all COMPUSTAT listed manufacturing firms for the 1993-1998 period and Guo and Masulis (2015) for all listed firms in RiskMetrics database spanning the period 1996-2010.

successor is ('Earliest-known date' hereafter) becomes extremely important.[58] I hand-collected information on the 'Earliest-known date' by retrieving related news articles published either in the mainstream media (for e.g., *The Wall Street Journal*) or industry-specific journals and magazines, through Factiva. When determining the 'Earliest-known date', I disregard dates that are based on pure speculation or dates when the media offers a candidate list of more than one person.[59] Successions initiated by pre-established agreements/ rules are often well-planned. In such cases, if the predecessor is approaching the firm's mandatory retirement age, I dig into the firm's promotion channel and combine it with related media coverage to see who is likely to be seen by market participants as the outgoing CEO's heir apparent. In this case, the date when the incoming CEO was promoted as the outgoing CEO's heir apparent is considered to be the 'Earliest-known date'.[60] By contrast, board-initiated, CEO-initiated, deceased or disability-related turnovers take place unexpectedly and a change in the guard conveys new information to market participants. For the above-mentioned three circumstances, the 'Earliest-known date' in most cases is the date that the company officially announces leadership appointments through its press release. If not, I take the date when the news articles first reveal the successor as the date of interest. In some special cases where the interim leader

[58] For example, on 1st August 2000, carpet manufacturer Mohawk Industries Inc. said its Chairman and CEO David Kolb would retire effective on 1st January 2001, and the board had elected Jeffrey Lorberbaum, its then president and COO to succeed Kolb as CEO. Compustat records 1st January 2001 as LEFTOFC for David Kolb's entry and the same date as BECAMECEO for Jeffrey Lorberbaum. However, 1st August 2000 is the actual date when new information about succession gaps enters the market.

[59] For example, on 3rd April 2007, Associated Press Newswires reported that Cooper Companies CEO Tom Bender would leave his post by the year's end but who would be the next leader was not certain. They reported that Larry Biegelsen, an analyst with Prudential Equity Group, speculated that Bob Weiss was the likely successor based on the change in the press release commentary. "But he may not be the CEO. That is the decision the board will make by the end of the year", said Bender. Four months later, on 23rd August 2007, Robert S. Weiss was officially appointed CEO of Cooper Companies. In this case, I take 23rd August 2007 as the date of interest. Another example is the succession event of Ebay. On 22nd January 2008, EBay's CEO Meg Whitman announced her intention to retire from the online auctioneer, Reuters New reported that John Donahoe was the leading candidate to succeed Whitman, his assignment of running the Ebay marketplace business when he joined Ebay in 2005 appeared to sideline other internal candidates such as Bill Cobb, the head of Ebay's North America business. On 23rd January 2008, Whitman confirmed she was to be replaced by executive John Donahoe. Although there is only one-day's difference, I still take 23rd January 2008 as the 'Earliest-known date', as there were other candidates on the waiting list and the level of succession gaps was not clear prior to Ebay's confirmation that Donahoe would be taking charge.

[60] For example, on 19th Sep 2010, *The Wall Street Journal* carried the headline 'Verizon names president, COO; carrier taps wireless chief McAdam for roles, revealing likely succession plan for CEO Seidenberg'. Several months later, on 4th Mar 2011, the Dow Jones News Service convincingly reported that Verizon took another step in cementing Lowell McAdam's position as VZ's next leader by electing him to the board. Subsequently, he was designated the successor to Chairman/ CEO Ivan Seidenberg when he was promoted to his then position as President and COO in October. On 22nd Jul 2011, Verizon announced a leadership change through its press release, named Lowell McAdam as CEO and Seidenberg to remain chairman. Here, although 22nd Jul 2011 is the firm's official announcement date of the successor, 19th Sep 2010 is the 'Earliest-known date' for market participants to process all information and digest the gaps between the predecessor and the potential successor.

finally becomes the permanent successor,[61] I take the date that the firm first taps the incoming CEO as an interim leader to be the event date.[62]

4.4. Event Study Methodology

In this section, I describe my methodology to measure market participants' reaction to the succession event. I am, however, not only interested in just the unconditional stock market reaction to the succession event, but rather on how the market response varies across successions involving varying degrees of gaps between the predecessor and the successor. As shown in Figure 1, I use an estimation window (ESTPERIOD) of 200 trading days (i.e., t=-245 to -46 relative to the date of interest), which specifies the length of time used to estimate the expected return and residual return variance. The 40-day pre-announcement period (INTERVAL) between the end of the estimation period and the beginning of the event window (EVTSTART) serves to capture the effect of information leakage well before the event announcement date. I employ an 11-day event window [-5,+5] to address the uncertainty of the exact timing at which market participants first receive relevant information regarding the succession event (Brown & Warner, 1985; O'hara & Shaw, 1990; Malmendier & Tate, 2009). A relatively short five days post-succession event period mitigates confounding the announcement period returns with those in response to any policy changes introduced immediately post succession. Finally, to limit the impact of missing observations, every firm in the analysis has to have 30 non-missing return observations over the 200-trading day estimation period.

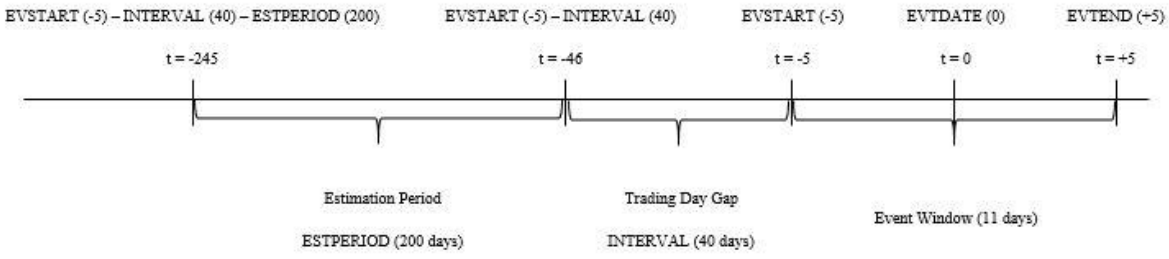

Figure 1 Event time period

Succession announcements that fall on non-trading days are replaced with the next closest trading following the announcement. Ordinary least squares coefficients ($\widehat{\alpha_i}$ and

[61] For instance, on 1st Sep 2009, CA Inc. CEO John Swainson announced his plan to retire by year-end and Bill McCracken was named interim executive chairman to assist in the transition. McCracken's performance during his stay was so good that the firm decided to make him permanent chief several months later (28th Jan 2010).
[62] In the aforementioned case, 1st Sep 2009.

$\widehat{\beta_i}$) of the market model regression were estimated over the estimation period (t=-245 to t=-46) and the returns generated were adjusted for delisting. Daily abnormal returns for each stock were then computed as $AR_{i,t}= (R_{i,t} - R_{f,t}) - [\widehat{\alpha_i} + \widehat{\beta_i}(R_{m,t} - R_{f,t})]$

Three additional models are implemented in this paper for robustness checking, namely: (1) the Market-Adjusted Model, which produces abnormal returns defined according to CRSP value-weighted market return by assuming a market beta of one ($AR_{i,t}= (R_{i,t}\text{-}R_{f,t}) - R_{m,t})$); (2) the Fama-French three factors (FF3F) model, which generates abnormal returns in excess of FF3F model ($AR_{i,t} = (R_{i,t} - R_{f,t}) - [\widehat{\alpha_i} + \widehat{\beta_{1,i}}(R_{m,t} - R_{f,t}) + \widehat{\beta_{2,i}} * SMB_{i,t} + \widehat{\beta_{3,i}} * HML_{i,t}]$); and (3) the Carhart (1997) Model, which adds the momentum factor on top of the Fama-French three factors ($AR_{i,t}= (R_{i,t} - R_{f,t}) - [\widehat{\alpha_i} + \widehat{\beta_{1,i}}(R_{m,t} - R_{f,t}) + \widehat{\beta_{2,i}} * SMB_{i,t} + \widehat{\beta_{3,i}} * HML_{i,t} + \widehat{\beta_{4,i}} * MOM_{i,t}]$).

Cumulative Abnormal Returns (CARs) were computed using the following equation:

$$CAR_i(T_1, T_2) = \sum_{t=T_1}^{T_2} AR_{i,t} \quad (4.1)$$

In event studies, the assumption of no event-induced changes in the variance of the abnormal returns during the event period is often violated. Thus, the ordinary cross-sectional t-statistics (t_{CS}) is preferred over the Patell's Z-value:

$$t_{CS} = \frac{\frac{1}{M}\sum_{i=1}^{M} AR_{i,t}}{\sqrt{\frac{1}{M(M-1)}\sum_{i=1}^{M}\left[AR_i - \frac{1}{M}\sum_{I=1}^{M} AR_i\right]^2}} \quad (4.2)$$

where M denotes the number of stocks and $AR_{i,t}$ represents the abnormal return for the i^{th} stock in time t. However, the ordinary cross-sectional t-statistic still assumes that abnormal returns are cross-sectionally independent, which is usually not the case when CEO succession events tend to cluster in a specific calendar time, for example when successions take place during an economic downturn. Boehmer et al. (1991) introduce the standardized cross-sectional t-statistics (t_{SCS}) by using standardized abnormal returns (SAR) as the replacement of abnormal returns (AR). The t_{SCS} not only accounts for event-induced variance of abnormal returns, but also considers information coming from both the estimation period as well as the event window:

$$t_{SCS} = \frac{\frac{1}{M}\sum_{i=1}^{M} SAR_{i,t}}{\sqrt{\frac{1}{M(M-1)}\sum_{i=1}^{M}\left[SAR_i - \frac{1}{M}\sum_{I=1}^{M} SAR_i\right]^2}} \quad (4.3)$$

where $SAR_{i,t} = AR_{i,t}/\sqrt{VAR(\varepsilon AR_i)}$. εAR_i is the residual produced by the risk model estimation for stock i. In doing so, I am able to control for the impact of high variance on test statistics.

4.5. Market reactions to Succession Gaps

4.5.1. Summary Statistics

Table 4.1 presents the number of event firms under different levels of succession gaps. As shown in Panel A, the starting sample of 521 succession firms with identifiable 'Earliest-known date' over the period 1992 to 2016, consisted of 150 (28.79% of the overall cases) forced removals, 369 (70.83%) non-forced succession events,[63] 133 (25.53%) successions following poor performance and 388 (74.47%) successions following good performance. The majority of CEO succession gaps fall into 1-3 categories. I then excluded firms with less than 30 non-missing return observations within the 200-trading day estimation period resulting in a final sample, as shown in Panel B, consisting of 99 (27.27% of the overall cases) forced removals out of 363 CEO successions and 263 (72.45%) non-forced succession events, 95 (26.17%) successions following poor performance and 268 (73.83%) successions following good performance. Among forced (non-forced) successions, 73 (195) cases are characterized by incoming CEOs with a succession gap of less than three, and 26 (68) cases are characterized by incoming CEOs with a succession gap of equal or greater than three. For successions under poor (good) pre-succession firm performance, 75 (194) cases are characterized by incoming CEOs with a succession gap of less than three, and 20 (74) cases are characterized by incoming CEOs with a succession gap greater than or equal to three.

<Insert Table 4.1 here>

4.5.2. Event Study Results

Table 4.2 shows the average daily abnormal returns, the standardized cross-sectional t-statistics for daily abnormal returns, the average daily cumulative abnormal returns, the standardized cross-sectional t-statistics for cumulative abnormal returns, and the number of positive and negative abnormal returns for the entire sample during the period -5 to +5 relative to the event date, respectively. Panel A shows the statistics for

[63] Note that 150 and 369 do not add up to 521. There're two cases that I am unable to identify whether they're forced removals or voluntary turnovers due to lack of information.

firms with relatively low levels of succession gaps (i.e. the Low Gap group), while Panel B demonstrates results for the firms with relatively high levels of succession gaps (i.e. the High Gap group).

As shown in Panel A, the announcement of succession events with relatively low succession gaps are associated with positive yet insignificant abnormal returns on the event date (t=0), and the day after investors first discover who the successor is (t=1) (a 0.32% positive abnormal return with a standardized cross-sectional t-value of 1.57). The market self-corrects in the following few days (from t=2 to t=4), with the fourth post-event day's abnormal return being significantly negative at -0.19%. Similarly, as shown in Panel B, for the High Gap group, market participants only react positively on the event date. The abnormal return for the High Gap group on the 'Earliest-known date' is 0.45% with a standardized cross-sectional t-value of 1.73. The market continues to react positively one day following the revelation of relatively high levels of succession gaps (t=1). A reasonable pull back in abnormal returns can be seen over the [+2,+3] event window although the daily abnormal performance during those two days is not statistically different from zero. The cumulative abnormal returns over the [-5,+5] event window for High Gap firms and Low Gap firms are 0.95% and 0.36%, respectively. However, none of the figures are statistically significant at any conventional levels.

<Insert Table 4.2 here>

4.5.2.1. Forced Succession versus Non-forced Succession

Notwithstanding the full-sample results in Table 4.2, given that my original sample is heterogeneous with regard to pre-event firm conditions, it is possible that the market's reaction resulting from a radical shift in CEO characteristics may differ across subsamples which gets annulled in a portfolio analysis. To test for this possibility, I next analyze the full-sample results further by disaggregating the original sample into firms that were the subject of a turbulent environment leading up to the succession event and those that were not.

Table 4.3 shows the average daily abnormal returns, the standardized cross-sectional t-statistics for daily abnormal returns, the average daily cumulative abnormal returns, the standardized cross-sectional t-statistics for cumulative abnormal returns, and the number of positive and negative abnormal returns for forced (Panel A) and non-forced (Panel B) successions over the [-5,+5] event window, respectively.

As shown in Panel A, market participants react positively to relatively high levels of differences between the predecessor and the successor under forced successions, but not when the incoming and departing CEO share similar easily observable personal traits. Firms belonging to the High Gap group under forced removals on average experience significantly positive cumulative abnormal returns of 2.64% over the [-5,+5] event window. In sharp contrast, tapping successors with relatively low levels of succession gaps is associated with positive cumulative abnormal returns only for the intervals [-5,0] and [-5,+1]. Nonetheless, the daily abnormal returns for the Low Gap group under forced removals turns from positive to negative from two days following the event date (t=2) onwards, while returns for the entire [-5,+5] event window indicate no statistical significance suggesting that investors give too much weight to recent events compared to prior beliefs when making forecasts (Kahneman & Tversky, 1973), which could trigger an overreaction to forced successions.

The real effect seems to take precedence over the information effect as forced successions reveal the boards' intention to grant successors with a wider latitude of discretions to introduce adaptive changes (Friedman & Singh, 1989). While forced successions are in investors' interests, replacing the departing CEO with a demographically similar (i.e. with similar age, function, experience, education, etc.) successor does not convey any information about the firm's intention to address the underlying problems, as well as the potential for the successor to affect real changes in the future. The dispersion of stock prices from firm fundamentals will then be quickly reversed when the market realizes that instead of affecting effective changes, tapping a successor sharing similar personal traits with his/ her predecessor will simply indicate organizational inertia and may convey no information about future performance. Forced successions accompanied by relatively low levels of succession gaps are seen by the market as merely ritualistic that scapegoat the outgoing CEO. High succession gaps, on the other hand, convey to the market a mandate for change and the firm's willingness to give the successor abundant discretion to affect personnel and strategic changes. Investors' confidence is restored and they react favorably to high succession gaps under forced removals, as such movements point toward an improvement in the firm's future performance.

For non-forced successions, as shown in Panel B, the Low Gap group produces a 0.37% abnormal returns one day following (t=+1) the 'Earliest-known date' with a standardized cross-sectional t-statistic of 1.69. Other than that, the daily abnormal returns

during the [-5,+5] event window for non-forced successions with 'demographically similar' successors are not statistically different from zero. Interestingly, the market does not seem to react to non-forced succession events even if the incoming and the outgoing CEOs differ considerably (i.e., Gap Index falls into the 3-6 category) post-succession. Overall, the cumulative abnormal returns following the unveiling of CEO succession is not statistically different from zero during the [-5,+5] event period for both the low gap and the high gap groups. This is because the event itself does not convey any new information to investors.

To conclude, consistent with Hypothesis 1, non-forced successions are not associated with abnormal returns during the [-5,+5] event window, no matter how different the successor is from his/ her predecessor. The market, however, reacts significantly and positively to successions when the outgoing CEO is forced out and the incoming CEO possesses personal traits that turn out to be nothing like his/ her predecessor. The revelation of tapping CEOs sharing similar characteristics and personal backgrounds under forced successions is also associated with positive abnormal returns that are, however, small and relatively short-lived.

<Insert Table 4.3 here>

4.5.2.2. Poor Pre-succession Performance versus Good Pre-succession Performance

CEO successions following poor prior performance are another set of successions that could potentially influence investors' reactions to the differences between the incoming and outgoing CEOs. As shown in Table 4.4, when pre-succession performance has been poor, firms with low succession gaps experience a positive yet insignificant abnormal returns during the [0,+2] event window, followed by a price reversal of a significant -0.33% on the third day (t=+3). However a significant 1.23% surge in abnormal returns on the event date and a continuous increase of 1.97% on the following day (albeit not statistically significant) could be observed for firms whose successors differed considerably from their predecessors. In the context of good pre-succession performance, however, the revelation of CEO succession gaps is generally associated with no abnormal returns.

Overall, firms with high succession gaps under poor pre-succession performance enjoy significant positive cumulative abnormal returns of 4.35% over the [-5,+5] event window. This finding supports the previous perception that market participants respond

favorably when they perceive firms which perform poorly have the opportunity to recover (Katz et al., 1985; Queen & Roll, 1987; Davidson III et al., 1993). The lack of statistical significance for CARs over the event period for firms enjoying good pre-succession performance (regardless of the level of gaps between the predecessor and the successor), and for firms with low succession gaps under poor pre-succession performance, does not come as a surprise given the aforementioned two circumstances not helping raise investors' expectations regarding a firm's future prospects.

<Insert Table 4.4 here>

4.5.3. Robustness Tests

To test for the robustness of findings based on the primary indicator of event date – the 'Earliest-known date' – I next use the 'Official announcement date' as an alternative event date. This is the day when the company officially announces leadership appointments through its press release. Similar to the 'Earliest-known date', I hand-collected the information on the 'Official announcement date' through Factiva by retrieving related news articles, which are either published in the mainstream media or industry-specific journals and magazines. For non-forced turnovers or firms enjoying good pre-succession performance, the 'Earliest-known date' might differ from the 'Official announcement date' in the existence of succession planning. For instance, relay successions usually include a grooming period for the heir apparent, who is often a candidate from within the firm (Zhang & Rajagopalan, 2004) and then promoted to the position of President or COO when the outgoing CEO approaches the mandatory retirement age, to fill the outgoing CEO's position. In this case, the 'Earliest-known date' should be the date on which the market knows who the heir apparent is, and related news articles convincingly state that the person is going to take charge after the retirement of the outgoing CEO. The 'Earliest-known date', under such circumstances, might come several months, or even one or two years, before the 'Official announcement date'. In other cases, board members can set up a 'horse race', let the candidates (mainly from within the firm) compete against one another and thus identify the best person for the leadership position. Market participants are therefore not sure which person from the candidate list would be the eventual 'winner' until the official announcement is made. Under such circumstances, the 'Earliest-known date' is most often identical to the 'Official announcement date'.

For forced successions or successions following poor performance, on the other hand, since the event is unplanned and unexpected, even if the board had thought about getting the predecessor removed long before the succession event actually happens, or in some circumstances, speculations about the potential candidates might be given by industrial analysts well ahead of firm's announcement, who is ultimately going to take charge is often not clear until the firm makes an official announcement. Thus, in most cases, the 'Earliest-known date' is identical to the 'Official announcement date' and produces results consistent with each other.

As shown in Tables 4.5, 4.6 and 4.7, results produced by 'Official announcement date' are qualitatively similar to results presented in sections 4.5.2, 4.5.2.1 and 4.5.2.2 by using the 'Earliest-known date' as the event date. Overall, results using the primary event date remain robust.

<Insert Tables 4.5, 4.6 and 4.7 here>

I have conducted additional robustness checks by: (1) changing the length of the estimation window (ESTPERIOD); (2) changing the length between the end of the estimation period and the beginning of the event window (INTERVAL); and (3) adopting different estimation models. Results are not sensitive to any of these additional tests.[64]

4.5.4. Cross-sectional Regression Analysis

Compared to univariate analysis, multivariate tests provide us with the partial effect of CEO succession gaps after taking various influential factors into consideration. To get a better understanding of the price effects of CEO succession gaps, I estimate the coefficient on HIGH_GAP variable by using the following regression equation:

$$CAR_{i(-5,+5)} = \alpha + \beta_1 * HIGH\ GAP + \beta_2 * FORCED + \beta_3 * POOR\ PRE\ PERF + \beta_4 * OUTSIDER + \beta_5 * DUALITY + \beta_6 * FOUNDER + \beta_7 * FAMILY\ MEMBER + \beta_8 * FIRM\ AGE + \beta_9 * SIZE + \beta_{10} * LEV + \beta_{11} * MTB + \beta_{12} * TANG + \epsilon_{i,t} \quad (4.4)$$

where $CAR_{i(-5,+5)}$ is the cumulative abnormal return over the 11-day period [-5,+5] days centered on the event date. HIGH_GAP equals one if the firm has a GAP_INDEX between the predecessor and the successor greater than two (i.e. GAP_INDEX = 3/4/5/6) and zero otherwise (i.e. GAP_INDEX = 0/1/2). FORCED is a dummy variable that equals one if the predecessor is forced out and zero otherwise.

[64] These additional results are not reported for brevity but are available upon request.

The classification of succession events into forced/ non-forced follows the method used in Parrino (1997). POOR_PRE_PERF takes the value of one if the firm's pre-succession firm performance is lower than its two-digit SIC code industry median in a given fiscal year in my sample and zero otherwise. OUTSIDER, a dummy variable indicating successor origin, equals one if the new CEO is an external candidate and zero otherwise. DUALITY is a dummy equals one when a firm's CEO serves as chairman of the board of directors and zero otherwise. FOUNDER is a dummy variable set equal to one if the CEO is the founder of the company, and zero otherwise. FAMILY_MEMBER is a dummy variable that takes the value of one if the CEO is a family member of the original founders, and zero otherwise. FIRM_AGE denotes the number of years since the firm's foundation. SIZE takes the natural logarithm of the book value of total assets. LEV is the firm's total debts divided by its total assets. MTB is market capitalization divided by book value of total assets. TANG is calculated as the firm's net property, plant and equipment over total assets. I include two-digit SIC industry and year fixed effects to control for unobserved heterogeneity across different industries and years.

Table 4.8 presents the results from ordinary least squares regressions examining the effect of high succession gaps on firm's subsequent cumulative abnormal returns. Columns 1, 2 and 3 report the effect of High Gap, the interaction effect of High Gap and forced turnover, and the interaction effect of High Gap and Poor pre-succession firm performance on firm cumulative abnormal returns during the [-5,+5] event window, respectively. In model 1, I do not find any meaningful relationship between high succession gaps and the eleven-day cumulative abnormal returns when news first leaks out regarding the identity of the successor. These results are not surprising given that my sample is heterogeneous with respect to the nature of the succession events. Given this possibility, I next study results in subsamples by successively interacting the HIGH_GAP dummy with both the FORCED succession dummy and the POOR_PRE_PERF dummy.

In model 3, the coefficient on HIGH_GAP is 0.00367, which is neither economically nor statistically significant, suggesting that the market does not react to appointment of CEOs with high succession gaps in firms with good pre-succession performance. The insignificant coefficient on POOR_PRE_PERF in model 3 shows that under poor pre-succession performance, successors with relatively low levels of succession gaps are associated with no abnormal returns. As shown by the significantly positive coefficient on the interaction between HIGH_GAP and POOR_PRE_PERF, consistent with my previous empirical analysis, investors react more positively to

incoming CEOs with high succession gaps in firms with poor performance leading up to the succession event than in those enjoying good pre-succession performance. Interestingly, the interaction term between HIGH_GAP and FORCED shows a positive sign albeit one that is not statistically significant at any conventional level. Investors do not respond differently for successors with high levels of succession gaps between forced removals and non-forced turnovers. This might be due to the problem of small sample size associated with high CEO succession gaps under forced successions. Small samples usually produce results with low statistical power and generally non-significant results.

<Insert Table 4.8 here>

For a robustness check, I repeat my analysis by incorporating industry fixed effects, year fixed effects, and the interactions between industry dummies and year dummies, to rule out the potential effect of industry-specific fixed effects during a particular year. Including the industry-year interaction term makes the succession gap variable and the measures of firm cumulative abnormal returns comparable across industries in any given year. Results for this analysis are presented in Table 4.9 and are qualitatively similar to those reported earlier.

<Insert Table 4.9 here>

I next repeat analysis in Table 4.8 and Table 4.9 by using the 'Official announcement date' rather than the 'Earliest-known date'. Results are presented in Table 4.10 and once again the earlier results using the primary event date remain robust.

<Insert Table 4.10 here>

4.6. Conclusion

In this study, I employ an event study approach to examine the price effects of CEO succession gaps. Focusing on the differences in personal traits/ past experiences between the outgoing and incoming CEOs in S&P 500 companies spanning the period 1992-2016, I do not find any relationship between the level of CEO succession gaps and firm cumulative abnormal returns over the 11 days [-5,+5] surrounding the event window. However, when the sample is split into subsamples based on the nature of the succession events, results are dramatically different. Under forced removals and when pre-succession firm performance has been poor, market participants react favorably to successors with relatively high levels of succession gaps. For firms tapping successors with relatively low levels of succession gaps under forced removals or successions

following poor performance, returns for the entire [-5,+5] event window indicate no statistical significance. Although some short-lived positive cumulative abnormal returns could be observed, the dispersion of stock prices from firm fundamentals is quickly reversed when the market realizes that instead of affecting effective changes, tapping a successor sharing similar personal traits with his/ her predecessor will simply indicate organizational inertia and may convey no information about management quality improvements and/ or firm future performance.

Under non-forced successions or when pre-succession performance has been good, cumulative abnormal returns following the revelation of CEO succession gaps is not statistically different from zero for incoming CEOs with both high and/ or low succession gaps. This is due to the event itself not conveying any new information to investors. Overall, the evidences presented in this study suggest that firms may use CEO succession events and easily observable personal traits differences between the incoming and the outgoing CEOs as an investor management tool to restore investor confidence. This is especially the case when firms force out their predecessors and/ or when firms experience poor performance leading up to succession events.

Table 4. 1 Summary Statistics

This table presents the number of succession firms in this paper spanning the period 1992-2016 with different levels of CEO succession gaps under specific settings. The state variable GAP_INDEX is constructed as follows: For every difference between the predecessor and the successor with regard to their gender, age, career variety, cultural background, highest education level, and eliteness of undergraduate school, one point is added to the index. Forced (Non-forced) Succession group is defined as one where the firm's predecessor is forced out (not forced out) during the succession event. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Poor (Good) Pre-Performance groups are defined as entities in which a firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level.

Gap Index	Full Sample	Forced	Non-Forced	Poor Performance	Good Performance
Panel A: Starting Sample					
0	63	17	45	17	46
1	144	35	109	36	108
2	176	52	123	46	130
3	103	35	68	25	78
4	31	8	23	8	23
5	3	2	1	1	2
6	1	1	0	0	1
Total	521	150	369	133	388
Panel B: Final Sample					
0	47	12	34	14	33
1	101	25	76	26	75
2	121	36	85	35	86
3	70	18	52	14	56
4	21	5	16	5	16
5	2	2	0	1	1
6	1	1	0	0	1
Total	363	99	263	95	268

Table 4. 2 Event Study – Full Sample

Table 4.2 shows the average daily abnormal returns, standardized cross-sectional T-values for daily abnormal returns, average daily cumulative abnormal returns, standardized cross-sectional t-statistics for cumulative abnormal returns, and the number of positive and negative abnormal returns for the entire sample during the period -5 to +5 relative to the 'earliest-known date', respectively. Panel A shows the statistics for firms with relatively low levels of succession gaps (i.e. the Low Gap group), while Panel B demonstrates results for the firms with relatively high levels of succession gaps (i.e. the High Gap group).

Panel A: Firms with low succession gaps					
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	0.01%	-0.50	0.01%	-0.50	132: 145
-4	-0.01%	-0.63	0.00%	-0.80	134: 143
-3	0.01%	0.06	0.01%	-0.66	142: 135
-2	0.16%	1.11	0.17%	0.05	142: 135
-1	0.04%	-0.03	0.21%	0.04	132: 145
0	0.16%	0.45	0.37%	0.33	140: 137
1	0.32%	1.57	0.70%	1.23	146: 131
2	-0.12%	-0.97	0.57%	0.86	130: 147
3	-0.02%	-0.68	0.55%	0.64	125: 152
4	-0.19%	-2.04	0.36%	0.03	123: 154
5	0.00%	0.04	0.36%	0.04	143: 134
Panel B: Firms with high succession gaps					
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	-0.07%	-0.19	-0.07%	-0.19	51: 46
-4	0.28%	1.41	0.21%	0.94	54: 43
-3	-0.12%	-1.01	0.09%	-0.03	45: 52
-2	-0.05%	0.46	0.04%	0.19	48: 49
-1	-0.11%	0.03	-0.07%	0.18	43: 54
0	0.45%	1.73	0.38%	1.10	51: 46
1	0.49%	0.45	0.87%	1.12	46: 51
2	-0.09%	-0.17	0.78%	1.03	51: 46
3	-0.23%	-1.49	0.55%	0.56	42: 55
4	0.00%	0.10	0.55%	0.58	47: 50
5	0.39%	1.44	0.95%	0.91	54: 43

Table 4. 3 Event Study – Forced vs. Non-forced Successions

Table 4.3 shows the average daily abnormal returns, standardized cross-sectional T-values for daily abnormal returns, average daily cumulative abnormal returns, standardized cross-sectional t-statistics for cumulative abnormal returns, and the number of positive and negative abnormal returns for forced succession firms and non-forced succession firms over the [-5,+5] event window, respectively. Panel A shows the statistics for firms which force out their predecessors, while Panel B demonstrates results for firms that experienced non-forced successions. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997).

Panel A: Forced successions										
Low Gap						High Gap				
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	-0.03%	-0.50	-0.03%	-0.50	34: 41	0.34%	1.01	0.34%	1.01	17: 10
-4	0.08%	-0.06	0.05%	-0.31	40: 35	0.55%	2.20	0.88%	2.18	17: 10
-3	0.24%	0.63	0.29%	0.07	43: 32	0.10%	0.11	0.99%	1.92	15: 12
-2	0.05%	0.12	0.34%	0.11	41: 34	-0.14%	-0.41	0.84%	1.40	12: 15
-1	0.45%	2.07	0.80%	1.04	43: 32	0.22%	0.74	1.06%	1.66	12: 15
0	0.88%	1.28	1.67%	1.78	47: 28	0.58%	0.94	1.65%	1.99	15: 12
1	0.22%	0.51	1.89%	1.85	38: 37	1.20%	0.95	2.84%	1.97	13: 14
2	-0.28%	-1.20	1.62%	1.52	31: 44	-0.23%	-0.03	2.61%	1.81	13: 14
3	-0.10%	-0.75	1.51%	1.22	34: 41	-0.50%	-1.28	2.11%	1.46	8: 19
4	-0.43%	-2.15	1.08%	0.62	29: 46	-0.03%	0.10	2.08%	1.39	14: 13
5	0.00%	-0.40	1.08%	0.46	35: 40	0.56%	2.00	2.64%	1.76	19: 8
Panel B: Non-forced successions										
Low Gap						High Gap				
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	0.03%	-0.30	0.03%	-0.30	98: 103	-0.22%	-0.98	-0.22%	-0.98	34: 36
-4	-0.04%	-0.72	-0.01%	-0.73	94: 107	0.17%	0.49	-0.05%	-0.17	37: 33
-3	-0.08%	-0.36	-0.09%	-0.84	98: 103	-0.21%	-1.08	-0.26%	-0.87	30: 40
-2	0.21%	1.19	0.11%	-0.02	100: 101	-0.02%	0.72	-0.27%	-0.54	36: 34
-1	-0.12%	-1.24	0.00%	-0.63	89: 112	-0.24%	-0.36	-0.51%	-0.57	31: 39
0	-0.11%	-0.57	-0.11%	-0.83	92: 109	0.40%	1.47	-0.11%	0.18	36: 34
1	0.37%	1.69	0.26%	0.21	108: 93	0.21%	-0.23	0.11%	0.07	33: 37
2	-0.07%	-0.37	0.19%	0.07	99: 102	-0.03%	-0.20	0.08%	0.01	38: 32
3	0.00%	-0.46	0.19%	-0.07	90: 111	-0.12%	-0.93	-0.05%	-0.24	34: 36
4	-0.10%	-1.04	0.09%	-0.37	94: 107	0.01%	0.05	-0.04%	-0.24	33: 37
5	0.00%	0.47	0.10%	-0.23	108: 93	0.33%	0.73	0.29%	-0.01	35: 35

Table 4. 4 Event Study – Poor Pre-performance vs. Good Pre-performance

Table 4.4 shows the average daily abnormal returns, standardized cross-sectional T-values for daily abnormal returns, average daily cumulative abnormal returns, standardized cross-sectional t-statistics for cumulative abnormal returns, and the number of positive and negative abnormal returns for firms with poor past performance and firms with good pre-succession performance over the [-5,+5] event window, respectively. Panel A shows the statistics for firms experiencing poor pre-succession performance, while Panel B demonstrates results for firms that enjoy good pre-succession performance). Poor (Good) Pre-Performance groups are defined whereby a firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level.

Panel A: Successions following poor performance										
Low Gap						High Gap				
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	-0.09%	-0.36	-0.09%	-0.36	37: 39	0.48%	1.20	0.48%	1.20	14: 8
-4	0.04%	-0.16	-0.04%	-0.34	39: 37	0.35%	0.75	0.83%	1.38	11: 11
-3	0.11%	1.34	0.07%	0.53	43: 33	-0.27%	-1.04	0.56%	0.72	11: 11
-2	-0.05%	0.13	0.02%	0.51	33: 43	0.27%	0.91	0.83%	1.05	16: 6
-1	-0.02%	-0.32	0.00%	0.31	35: 41	0.25%	0.32	1.08%	1.04	9: 13
0	0.46%	0.42	0.46%	0.54	41: 35	1.23%	1.78	2.31%	2.14	15: 7
1	0.66%	1.44	1.12%	1.42	43: 33	1.97%	1.36	4.27%	2.27	12: 10
2	0.16%	0.38	1.28%	1.57	35: 41	-0.03%	-0.72	4.24%	1.86	11: 11
3	-0.33%	-3.00	0.94%	0.77	30: 46	-0.37%	-1.03	3.87%	1.61	10: 12
4	-0.11%	-1.17	0.83%	0.36	35: 41	0.24%	1.66	4.11%	2.00	13: 9
5	0.15%	1.39	0.99%	0.74	41: 35	0.24%	0.59	4.35%	1.97	13: 9
Panel B: Successions following good performance										
Low Gap						High Gap				
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	0.05%	-0.38	0.05%	-0.38	95: 106	-0.23%	-1.02	-0.23%	-1.02	37: 38
-4	-0.03%	-0.67	0.02%	-0.73	95: 106	0.26%	1.20	0.03%	0.35	43: 32
-3	-0.03%	-0.80	-0.01%	-1.10	99: 102	-0.08%	-0.69	-0.05%	-0.23	34: 41
-2	0.25%	1.22	0.23%	-0.27	109: 92	-0.14%	0.18	-0.20%	-0.14	32: 43
-1	0.06%	0.17	0.29%	-0.16	97: 104	-0.22%	-0.12	-0.41%	-0.16	34: 41
0	0.05%	0.30	0.34%	0.09	99: 102	0.23%	0.80	-0.18%	0.23	36: 39
1	0.19%	0.88	0.54%	0.58	103: 98	0.05%	-0.60	-0.13%	-0.01	34: 41
2	-0.23%	-1.41	0.31%	0.08	95: 106	-0.10%	0.20	-0.23%	0.05	40: 35
3	0.10%	0.69	0.40%	0.29	95: 106	-0.19%	-1.13	-0.42%	-0.28	32: 43
4	-0.22%	-1.67	0.18%	-0.18	88: 113	-0.07%	-0.67	-0.49%	-0.44	34: 41
5	-0.06%	-0.76	0.12%	-0.39	102: 99	0.44%	1.30	-0.05%	-0.05	41: 34

Table 4. 5 Robustness Check - Event Study using 'Official Announcement Date', Full Sample

Table 4.5 shows the average daily abnormal returns, standardized cross-sectional T-values for daily abnormal returns, average daily cumulative abnormal returns, standardized cross-sectional t-statistics for cumulative abnormal returns, and the number of positive and negative abnormal returns for the entire sample during the period -5 to +5 relative to the 'official announcement date', respectively. Panel A shows the statistics for firms with relatively low levels of succession gaps (i.e. the Low Gap group), while Panel B demonstrates results for the firms with relatively high levels of succession gaps (i.e. the High Gap group).

Panel A: Firms with low succession gaps					
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	0.01%	-0.73	0.01%	-0.73	124: 155
-4	0.07%	-0.50	0.08%	-0.89	134: 145
-3	-0.10%	-0.55	-0.02%	-1.10	139: 140
-2	0.14%	0.48	0.12%	-0.68	143: 136
-1	0.02%	0.03	0.13%	-0.61	133: 146
0	0.20%	0.82	0.33%	0.04	146: 133
1	0.42%	1.79	0.75%	1.13	148: 131
2	-0.03%	-0.68	0.72%	0.84	130: 149
3	0.07%	-0.12	0.79%	0.78	132: 147
4	-0.20%	-1.69	0.59%	0.27	123: 156
5	-0.02%	-0.12	0.57%	0.22	148: 131
Panel B: Firms with high succession gaps					
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	-0.05%	0.13	-0.05%	0.13	49: 48
-4	0.29%	1.39	0.24%	1.16	55: 42
-3	-0.20%	-1.61	0.04%	-0.11	47: 50
-2	-0.10%	0.27	-0.06%	0.04	45: 52
-1	-0.13%	-0.10	-0.18%	-0.00	45: 52
0	0.30%	1.38	0.12%	0.78	52: 45
1	0.69%	1.25	0.81%	1.22	50: 47
2	-0.08%	-0.09	0.72%	1.15	50: 47
3	-0.18%	-1.32	0.54%	0.71	43: 54
4	0.02%	0.24	0.57%	0.77	49: 48
5	0.14%	0.46	0.70%	0.80	54: 43

Table 4. 6 Robustness Check - Event Study using 'Official Announcement Date', Forced vs. Non-forced Successions

Table 4.6 shows the average daily abnormal returns, standardized cross-sectional T-values for daily abnormal returns, average daily cumulative abnormal returns, standardized cross-sectional t-statistics for cumulative abnormal returns, and the number of positive and negative abnormal returns for forced succession firms and non-forced succession firms over the [-5,+5] event window using the 'official announcement date', respectively. Panel A shows the statistics for firms who force out their predecessors, while Panel B demonstrates results for firms that experienced non-forced successions. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997).

Panel A: Forced successions										
Low Gap						High Gap				
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	0.10%	-0.31	0.10%	-0.31	35: 40	0.36%	1.00	0.36%	1.00	16: 11
-4	0.38%	0.54	0.48%	0.28	40: 35	0.30%	1.52	0.66%	1.82	17: 10
-3	0.08%	0.45	0.56%	0.54	43: 32	0.23%	0.54	0.88%	1.76	16: 11
-2	0.20%	-0.12	0.76%	0.39	40: 35	-0.01%	0.05	0.87%	1.44	13: 14
-1	0.35%	2.11	1.11%	1.41	44: 31	0.13%	0.32	1.00%	1.58	11: 16
0	0.80%	1.37	1.91%	2.13	47: 28	0.54%	0.89	1.55%	1.89	15: 12
1	0.32%	0.51	2.23%	2.14	38: 37	1.08%	0.72	2.62%	1.79	13: 14
2	-0.07%	-0.79	2.17%	1.93	31: 44	-0.18%	0.10	2.45%	1.67	13: 14
3	0.12%	-0.37	2.29%	1.67	36: 39	-0.46%	-1.17	1.99%	1.35	8: 19
4	-0.38%	-1.62	1.91%	1.25	29: 46	-0.03%	0.19	1.96%	1.30	14: 13
5	-0.10%	-0.52	1.82%	0.99	36: 39	0.59%	2.11	2.56%	1.69	21: 6
Panel B: Non-Forced successions										
Low Gap						High Gap				
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	-0.02%	-0.64	-0.02%	-0.64	89: 114	-0.21%	-0.56	-0.21%	-0.56	33: 37
-4	-0.05%	-1.09	-0.07%	-1.31	94: 109	0.29%	0.79	0.08%	0.31	38: 32
-3	-0.17%	-0.98	-0.24%	-1.67	95: 108	-0.36%	-1.90	-0.29%	-0.97	31: 39
-2	0.12%	0.60	-0.12%	-1.11	102: 101	-0.13%	0.28	-0.41%	-0.80	32: 38
-1	-0.11%	-1.26	-0.23%	-1.62	89: 114	-0.23%	-0.29	-0.64%	-0.77	34: 36
0	-0.03%	-0.30	-0.25%	-1.52	98: 105	0.21%	1.05	-0.43%	-0.19	37: 33
1	0.47%	2.00	0.22%	-0.16	110: 93	0.53%	1.01	0.10%	0.29	37: 33
2	-0.02%	-0.29	0.20%	-0.25	99: 104	-0.04%	-0.20	0.06%	0.23	37: 33
3	0.04%	-0.02	0.24%	-0.25	95: 108	-0.07%	-0.80	-0.01%	-0.03	35: 35
4	-0.14%	-0.94	0.10%	-0.51	94: 109	0.04%	0.16	0.03%	0.01	35: 35
5	0.02%	0.45	0.12%	-0.39	112: 91	-0.04%	-0.56	-0.01%	-0.12	33: 37

Table 4. 7 Robustness Check - Event Study using 'Official Announcement Date', Poor Pre-performance vs. Good Pre-performance

Table 4.7 shows the average daily abnormal returns, standardized cross-sectional T-values for daily abnormal returns, average daily cumulative abnormal returns, standardized cross-sectional t-statistics for cumulative abnormal returns, and the number of positive and negative abnormal returns for firms with poor past performance and firms with good pre-succession performance over the [-5,+5] event window using the 'official announcement date', respectively. Panel A shows the statistics for firms experiencing poor pre-succession performance, while Panel B demonstrates results for firms that enjoy good pre-succession performance. Poor (Good) Pre-Performance groups are defined whereby a firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level.

Panel A: Successions following poor performance										
Low Gap						High Gap				
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	-0.07%	-0.73	-0.07%	-0.73	34: 43	0.47%	1.13	0.47%	1.13	13: 9
-4	0.29%	0.06	0.22%	-0.31	38: 39	0.07%	0.15	0.54%	0.90	10: 12
-3	-0.26%	0.26	-0.05%	-0.11	42: 35	-0.23%	-1.03	0.32%	0.16	11: 11
-2	0.10%	0.08	0.05%	-0.05	35: 42	0.35%	1.25	0.67%	0.79	16: 6
-1	-0.18%	-0.65	-0.13%	-0.36	34: 43	0.23%	0.27	0.90%	0.80	8: 14
0	0.27%	0.52	0.14%	0.01	40: 37	1.26%	1.85	2.16%	2.03	16: 6
1	0.82%	1.59	0.96%	1.11	43: 34	1.91%	1.20	4.07%	2.09	13: 9
2	0.31%	0.30	1.27%	1.18	36: 41	0.04%	-0.51	4.12%	1.78	12: 10
3	-0.02%	-1.77	1.25%	0.67	34: 43	-0.40%	-1.09	3.72%	1.52	10: 12
4	-0.14%	-0.94	1.10%	0.39	35: 42	0.23%	1.64	3.95%	1.89	13: 9
5	0.06%	1.36	1.16%	0.73	43: 34	0.24%	0.51	4.19%	1.85	14: 8
Panel B: Successions following good performance										
Low Gap						High Gap				
Event Day	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative	AR	T_{AR}	CAR	T_{CAR}	Positive: Negative
-5	0.04%	-0.48	0.04%	-0.48	90: 112	-0.21%	-0.57	-0.21%	-0.57	36: 39
-4	-0.02%	-0.70	0.03%	-0.85	96: 106	0.35%	1.48	0.15%	0.83	45: 30
-3	-0.04%	-0.83	-0.01%	-1.23	97: 105	-0.19%	-1.29	-0.04%	-0.17	36: 39
-2	0.15%	0.51	0.14%	-0.79	108: 94	-0.23%	-0.12	-0.27%	-0.23	29: 46
-1	0.09%	0.45	0.23%	-0.49	99: 103	-0.24%	-0.24	-0.50%	-0.29	37: 38
0	0.17%	0.65	0.41%	0.04	106: 96	0.02%	0.24	-0.48%	-0.14	36: 39
1	0.27%	1.04	0.68%	0.64	105: 97	0.33%	0.63	-0.15%	0.15	37: 38
2	-0.16%	-1.15	0.52%	0.24	94: 108	-0.12%	0.17	-0.27%	0.21	38: 37
3	0.11%	0.79	0.62%	0.49	98: 104	-0.12%	-0.91	-0.39%	-0.09	33: 42
4	-0.23%	-1.41	0.40%	0.05	88: 114	-0.04%	-0.49	-0.43%	-0.22	36: 39
5	-0.05%	-0.96	0.35%	-0.21	105: 97	0.11%	0.24	-0.32%	-0.14	40: 35

Table 4. 8 OLS Regression

Table 4.8 shows the OLS regression results of CEO succession gaps on firm cumulative abnormal returns over the [-5,+5] event window. The state variable GAP_INDEX is constructed as follows: For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. HIGH_GAP equals one if the firm has a GAP_INDEX greater than the median value of 2 (i.e. GAP_INDEX = 3/4/5/6) and zero otherwise (i.e. GAP_INDEX = 0/1/2). Forced (Non-forced) Succession group is defined whereby the predecessor of the firm is forced out (not forced out) during the succession event. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Poor (Good) Pre-Performance groups are defined whereby a firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level. Regressions include industry and year fixed effects. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

	1	2	3
HIGH_GAP	0.014	0.011	0.004
	(1.46)	(1.00)	(0.33)
HIGH_GAP*FORCED		0.010	
		(0.47)	
HIGH_GAP*POOR_PRE_PERF			0.046*
			(1.92)
FORCED	0.005	0.003	0.002
	(0.56)	(0.27)	(0.16)
POOR_PRE_PERF	0.022**	0.021**	0.013
	(2.20)	(2.13)	(1.16)
OUTSIDER	0.016	0.016	0.016
	(1.37)	(1.37)	(1.40)
DUALITY	0.007	0.007	0.007
	(0.73)	(0.70)	(0.71)
FOUNDER	0.016	0.016	0.018
	(0.65)	(0.65)	(0.72)
FAMILY_MEMBER	0.010	0.009	0.002
	(0.31)	(0.26)	(0.07)
FIRM_AGE	-0.012*	-0.012*	-0.012*
	(-1.88)	(-1.83)	(-1.83)
SIZE	-0.003	-0.003	-0.003
	(-0.84)	(-0.84)	(-0.66)
LEV	0.051*	0.053*	0.053*
	(1.66)	(1.70)	(1.71)
MTB	0.002	0.002	0.002
	(0.55)	(0.59)	(0.67)
TANG	-0.023	-0.023	-0.028
	(-1.07)	(-1.07)	(-1.29)
Constant	0.003	0.005	0.003
	(0.05)	(0.07)	(0.04)
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Number of Observations	314	314	314
R-Squared	0.142	0.143	0.154

Table 4. 9 Robustness Check – OLS Regression Including Industry-Year Fixed Effects

Table 4.9 shows the OLS regression results of CEO succession gaps on firm cumulative abnormal returns over the [-5,+5] event window. The state variable GAP_INDEX is constructed as follows: For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. HIGH_GAP equals one if the firm has a GAP_INDEX greater than the median value of 2 (i.e. GAP_INDEX = 3/4/5/6) and zero otherwise (i.e. GAP_INDEX = 0/1/2). Forced (Non-forced) Succession group is defined if the predecessor of the firm is forced out (not forced out) during the succession event. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Poor (Good) Pre-Performance groups are defined if the firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level. Regressions include industry fixed effects, year fixed effects, and industry-year fixed effects. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

	1	2	3
HIGH_GAP	0.008	0.004	-0.005
	(0.66)	(0.25)	(-0.33)
HIGH_GAP*FORCED		0.011	
		(0.44)	
HIGH_GAP*POOR_PRE_PERF			0.047*
			(1.67)
FORCED	0.003	-0.001	-0.001
	(0.30)	(-0.08)	(-0.10)
POOR_PRE_PERF	0.021*	0.019	0.011
	(1.70)	(1.51)	(0.82)
OUTSIDER	0.016	0.017	0.018
	(1.17)	(1.18)	(1.29)
DUALITY	0.005	0.004	0.004
	(0.39)	(0.38)	(0.33)
FOUNDER	-0.005	-0.010	-0.007
	(-0.16)	(-0.32)	(-0.24)
FAMILY_MEMBER	-0.010	-0.015	-0.017
	(-0.28)	(-0.40)	(-0.49)
FIRM_AGE	-0.011	-0.010	-0.011
	(-1.28)	(-1.23)	(-1.32)
SIZE	-0.005	-0.004	-0.003
	(-0.87)	(-0.75)	(-0.58)
LEV	0.031	0.030	0.028
	(0.77)	(0.74)	(0.70)
MTB	0.004	0.004	0.005
	(0.74)	(0.81)	(0.92)
TANG	-0.011	-0.010	-0.015
	(-0.38)	(-0.35)	(-0.54)
Constant	-0.091	-0.087	-0.077
	(-0.81)	(-0.78)	(-0.69)
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Industry-Year Fixed Effects	Yes	Yes	Yes
Number of Observations	314	314	314
R-Squared	0.465	0.456	0.476

Table 4. 10 Robustness Check – OLS Regression using 'Official Announcement Date'

Table 4.10 shows the OLS regression results of CEO succession gaps on firm cumulative abnormal returns over the [-5,+5] event window using the 'official announcement date' instead of the 'earliest-known date'. The state variable GAP_INDEX is constructed as follows: For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. HIGH_GAP equals one if the firm has a GAP_INDEX greater than the median value of 2 (i.e. GAP_INDEX = 3/4/5/6) and zero otherwise (i.e. GAP_INDEX = 0/1/2). Forced (Non-forced) Succession group is defined if the predecessor of the firm is forced out (not forced out) during the succession event. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Poor (Good) Pre-Performance groups are defined whereby a firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level. Columns 1, 2 and 3 report the estimates controlling for industry and year fixed effects; while Columns 4, 5 and 6 report the estimates controlling for industry fixed effects, year fixed effects, and industry-year fixed effects. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

	1	2	3	4	5	6
HIGH_GAP	0.006	0.002	-0.006	0.002	-0.006	-0.013
	(0.59)	(0.17)	(-0.53)	(0.15)	(-0.39)	(-0.98)
HIGH_GAP*FORCED		0.013			0.018	
		(0.65)			(0.72)	
HIGH_GAP*POOR_PRE_PERF			0.050**			0.061**
			(2.15)			(2.13)
FORCED	0.006	0.003	0.002	0.014	0.008	0.008
	(0.67)	(0.29)	(0.23)	(1.21)	(0.59)	(0.70)
POOR_PRE_PERF	0.020**	0.019*	0.010	0.024*	0.022*	0.011
	(2.04)	(1.95)	(0.92)	(1.95)	(1.80)	(0.84)
OUTSIDER	0.019*	0.019*	0.019*	0.013	0.013	0.014
	(1.69)	(1.69)	(1.73)	(0.88)	(0.90)	(0.99)
DUALITY	0.007	0.006	0.006	0.003	0.003	0.002
	(0.69)	(0.65)	(0.67)	(0.27)	(0.23)	(0.20)
FOUNDER	0.008	0.008	0.010	0.003	-0.002	0.001
	(0.33)	(0.33)	(0.41)	(0.10)	(-0.08)	(0.03)
FAMILY_MEMBER	0.016	0.014	0.008	0.016	0.012	0.008
	(0.51)	(0.44)	(0.24)	(0.46)	(0.33)	(0.21)
FIRM_AGE	-0.012*	-0.011*	-0.011*	-0.013	-0.012	-0.013
	(-1.85)	(-1.78)	(-1.79)	(-1.57)	(-1.46)	(-1.63)
SIZE	-0.003	-0.003	-0.003	-0.007	-0.006	-0.005
	(-0.92)	(-0.92)	(-0.71)	(-1.34)	(-1.16)	(-0.96)
LEV	0.055*	0.057*	0.057*	0.054	0.049	0.05
	(1.85)	(1.91)	(1.91)	(1.35)	(1.23)	(1.28)
MTB	0.004	0.005	0.005	0.005	0.005	0.006
	(1.24)	(1.30)	(1.38)	(0.93)	(1.03)	(1.12)
TANG	0.006	0.006	0.001	0.010	0.010	0.004
	(0.29)	(0.29)	(0.05)	(0.39)	(0.37)	(0.16)
Constant	-0.027	-0.025	-0.027	-0.070	-0.066	-0.049
	(-0.40)	(-0.38)	(-0.41)	(-0.63)	(-0.59)	(-0.44)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year Fixed Effects	No	No	No	Yes	Yes	Yes
Number of Observations	314	314	314	314	314	314
R-Squared	0.169	0.170	0.183	0.446	0.445	0.460

Chapter 5 Conclusion

This thesis investigates how CEO succession gaps (i.e. the difference in personal traits between the predecessor and the successor) affect subsequent firm performance, firm risk-taking, and shareholders' value.

Chapter 2 seeks to identify characteristics of succession events when the impact of hiring a CEO with radically different personal traits could benefit the firm and conditions when such differences could potentially be harmful to firm value. For the full sample (S&P 500 data over the period 1996 to 2016) of CEO successions, I do not find evidence that the succession gap index impacts on future firm performance. Shifts in cultural mores can be beneficial or harmful to performance, and in a portfolio, the positive effect in some firms is neutralized by the adverse effect in others. I then split the sample into firms that were the subject of disruptive changes leading up to the succession event and those that were not. For firms that suffer from disruptive conditions (i.e. forced removals and successions preceded by poor firm performance) before succession events, an attempt to further shake up the status quo through a radical shift in the personal traits/ experiences of the CEO leads to worse subsequent firm performance. The negative relation between CEO succession gaps and subsequent firm performance is even stronger when adopting a longer three-year post-succession window. However, the adverse impact of the succession is limited only to the set of successions that are already reeling under disruptive conditions while firms in the complementary subsample (i.e. non-forced successions and firms enjoy good pre-succession performance) showed significant improvement in performance in the years following the succession event. Further, successors who differ considerably from their predecessors tend to co-opt a greater proportion of the board of directors one year after assuming office, have greater discretion to make far-reaching changes regarding downsizing and business divesting, and lead firms characterized by higher levels of post-succession strategic instability. This suggests that successor-induced personnel, structural and strategic alterations are likely to be higher when the event itself signals a change in firm policy or post-succession redirection. Overall, the empirical findings in Chapter 2 have strong implications for how firms manage CEO successions especially when the succession event is disruptive in nature. Rather than appointing successors with high succession gaps trying to stamp a mark on the firm by being different, firms under disruptive conditions should seek candidates with in-depth industry-specific knowledge, implementing an incremental approach to reform in company operations rather than demanding drastic changes. In this manner, the

incoming CEO could enhance rather than disturb existing internal and external relationships, and proactively seek help from incumbent board members and the top management team to successfully implement value-adding reforms.

Chapter 3 examines whether an index that captures differences in personal risk-taking attributes of the incoming and outgoing CEOs can explain post-succession firm risk. The main findings are as follows. In the baseline regression model, the risk-taking gap index contributes positively to firm total risk and its idiosyncratic components after controlling for firm and year fixed effects. However, the risk-taking gap index does not substantially lead to higher systematic risk. By further investigating the channels through which disruptions happen, results suggest that under forced removals, poor pre-succession firm performance, and external successions, incoming CEOs with higher risk-taking gap index generally lead to higher firm total risk and its systematic and idiosyncratic components in the subsequent year when compared to their non-succession matched pairs, even after controlling for CEO compensation incentives and CEO psychological traits (CEO overconfidence). The results further show that the increase in subsequent firm risk comes from increased financial and operating leverage (which leads to higher systematic risk), higher R&D intensity, lower capital expenditure and increased firm focus (which leads to higher idiosyncratic risk). Collectively, empirical findings in Chapter 3 suggest that the association between the differences in personal risk-preferences of the incoming and outgoing CEOs is particularly strong when the succession event indicates a mandate for change thereby giving the successor greater latitude in imprinting his/ her personal risk preferences on subsequent firm policy choices.

Traditional finance argues that investors are rational. In sharp contrast, however, behavioral finance suggests that investors are subjective performers who are not fully rational and make biased decisions driven by emotions and sentiment, among other things (Hirshleifer, 2001; Daniel et al., 2002; Peng & Xiong, 2006; Bodie et al., 2013). For instance, Cooper et al. (2001) document a significant increase in cumulative abnormal returns for firms adding '.com' to their original names. They assert that the announcement effect can result in a permanent firm value increase and is similar across firms with different degrees of involvement with the internet industry. In a related study, Cooper et al. (2005) argue that market participants generally favor mutual funds which make a style name change to reflect current trends, regardless of their actual investing styles and/ or performance. Hirshleifer and Shumway (2003) find a positive relation between the magnitude of sunshine and stock returns. As such, short-term announcement effects could

bear no relation to company fundamentals and could be very different from subsequent financial performance. Although forced successions and successions following poor pre-succession performance are generally disruptive (Friedman & Saul, 1991; Hutzschenreuter et al., 2012) and may result in a decrease in firm integration (Miller, 1993) especially when the successor differs significantly from his/ her predecessor, past literature finds that the market generally reacts favorably to board-initiated successions or successions preceded by poor performance (Friedman & Singh, 1989; Lubatkin et al., 1989; Davidson III et al., 1993; Denis & Denis, 1995).

In Chapter 4, I focus on the price impact of CEO succession gaps and see whether investor reactions around revelation of CEO succession gaps fully anticipated future firm performance. Using the event study approach, I find that investors tend to respond only to high CEO succession gaps when the event is disruptive in nature. Low levels of CEO succession gaps, non-forced successions or successions following good firm performance are generally associated with no abnormal returns during the [-5,+5] event window. Empirical findings in Chapter 4 suggest that under forced successions or when pre-succession performance has been poor, appointing successors with radically different personal traits from their predecessors could be used by firms as an investor management tool to restore shareholder confidence.

However, this thesis inevitably suffers from several limitations. First, given the time constraint, my samples are limited to S&P 500 companies. Second, CEO succession planning (or lack of) seems to be of great importance regarding firm performance and shareholders value (Shen & Cannella Jr, 2003; Zhang & Rajagopalan, 2004; Behn et al., 2005; McConnell & Qi, 2018). Not being able to collect and include such information in the empirical models may lead to omitted variable bias, as such dimension is likely to be correlated with CEO succession gap index.

Overall, this thesis constructs an index of differences based on gender, age, career variety, cultural and educational background of the outgoing and incoming CEOs and examines the impact this index has on firm prospects. In other words, this thesis provides empirical evidence that the difference in several easily observable personal traits between the predecessor and the successor have a substantive effect on firm operational performance, firm's future policy choices, and market perceptions on the succession event under different succession contexts. This research provides valuable insights into firms' hiring and firing decisions in the labour market. Potential extensions to this research include incorporating the process of CEO succession and investigating whether

CEO succession gaps contribute differently under different succession processes (for example, relay succession versus horse race).

Appendix A: Description of Variables

Variables	Definition
ROA	Return on total assets, defined as earnings before interest, taxes, depreciation and amortization over total assets.
PRE_PERFORMANCE	For succession firms, pre-succession performance is measured as ROA (return on total assets) in the year prior to the succession for short-term measurement. For non-succession matched pairs, PRE-PERFORMANCE denotes ROA measured at time (t-1). I take the three-year average pre-succession ROA measured at time (t-1) as long-term pre-performance measure for robustness check.
FIRM_AGE	Number of years since the firm's foundation.
LEV	Total debts divided by total assets.
SIZE	Natural logarithm of the book value of total assets.
MTB	Market capitalization divided by book value of total assets.
CAPEX	Capital expenditures divided by sales.
FCF	Free cash flow ratio, which equals free cash flow divided by the total assets of the company, where Free Cash Flow = EBITDA – CAPEX – change in working capital.
TANG	Fixed tangible assets (property, plant and equipment) divided by total assets.
BOARD_SIZE	Total number of directors.
BOARD_IND	The proportion of independent directors on the board.
TOTAL_PAY	Natural logarithm of CEO's total annual compensation.
OWNERSHIP	The percentage of outstanding shares owned by the CEO.
EQUITY_INTENSITY	The proportion of total annual CEO compensation that comes from option grants and stocks. This is the value of annual option awards plus the value of annual stock grants scaled by the amount of total annual compensation. The specific calculation formula is as follows: [option_awards_blk_value + rstkgrnt]/tdc1 (before 2006) and [option_awards_fv + stock_awards_fv]/tdc1 (after 2006).
DUALITY	A dummy variable indicating the board's structure, which equals one when a firm's chief executive officer (CEO) also serves as chairman of the board of directors, and zero otherwise.
FOUNDER	A dummy variable equal to one if the CEO is the founder of the company, and zero otherwise.
FAMILY_MEMBER	A dummy variable that equals one if the CEO is a family member of the original founders, and zero otherwise.
OUTSIDER	A dummy variable indicating successor origin, which equals one if the new CEO is an external candidate, and zero otherwise.
RND	Research and development expenditure over lagged revenue.
STKVOL	Annualized standard deviation of monthly stock return over the given year.
IND_SALES_GROWTH	The median three-year growth rate for aggregate sales for an industry defined by its two-digit SIC code.
LOW_DEBT_CAPACITY	A dummy variable equal to one if the firm has a long-term debt ratio (as measured by long-term debt divided by total assets) above the median industry long-term debt ratio and has a liquidity ratio (as measured by current assets divided by current liabilities) below the median industry liquidity ratio, and zero otherwise for firms matched by two-digit SIC code.
DIV_COVERAGE	Dividend coverage ratio, net income divided by common dividends.
DIV_CUT	A dummy variable that is equal to one if the firm decreases its annual dividend, and zero otherwise.
INTEREST_COVERAGE	Interest coverage ratio, operating earnings (EBITDA) divided by interest expense.
NUM_SEGMENTS	Number of business segments in which the firm operates.
HERF	Sale-based Herfindahl Index ranging from zero to one, calculated as the sum of the squares of each segment's sales as a proportion of total sales. A sale-based Herfindahl Index close to one indicates that the firm is concentrated with regard to its sales across different segments and hence having more concentrated operations.

Appendix B: Pre-Succession Firm Characteristics Mean Comparison Tests between the High-Gap Group and the Low-Gap Group

This table presents the difference in pre-succession firm characteristics between the high gap-succession group and low gap-succession group that are used in this paper for PSM matching spanning the period 1996-2016. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. HIGH_GAP is a dummy equal to one if the firm has a GAP_INDEX greater than the mean value of 1.82 and zero otherwise. PRE_PERFORMANCE_ST, is defined as ROA (return on total assets) one year prior to the succession event while PRE_PERFORMANCE is the three-year average pre-succession ROA. PRE_FIRM_AGE is the number of years since the firm was established one year prior to the succession event, PRE_SIZE is the firm size (natural log of total assets) one year prior to the succession event, PRE_LEV is the firm's book leverage (total debt) one year prior to the succession event, PRE_MTB is the firm's market-to-book ratio one year prior to the succession event, PRE_TANG is the firm's tangibility (calculated as fixed tangible assets divided by total assets) one year prior to the succession event. PRE_BOARDSIZE is the firm's number of directors one year prior to the succession event, while PRE_BOARD_IND is the proportion of independent directors on the board one year prior to the succession event. PRR_AGE denotes the age of the predecessor. PRE_OWNERSHIP is the percentage of outstanding shares owned by the predecessor and PRE_DUALITY is a dummy variable equalling one if the predecessor also serves as chairman of the board of directors, and zero otherwise.

Variable	Mean		Mean Difference	t-statistic	p>|t|
	High Gap	Low Gap			
PRE_PERFORMANCE_ST	0.164	0.169	-0.005	-0.757	0.450
PRE_PERFORMANCE	0.161	0.167	-0.006	-0.573	0.567
PRE_FIRM_AGE	3.915	4.160	-0.246	-3.697	0.000
PRE_SIZE	8.891	9.116	-0.226	-1.964	0.050
PRE_LEV	0.576	0.598	-0.022	-1.293	0.197
PRE_MTB	2.315	2.345	-0.030	-0.249	0.803
PRE_TANG	0.417	0.476	-0.059	-2.689	0.008
PRE_BOARDSIZE	10.602	10.791	-0.189	-0.910	0.364
PRE_BOARD_IND	0.730	0.746	-0.015	-1.032	0.303
PRE_AGE	60.691	59.900	0.791	1.598	0.111
PRE_OWNERSHIP	0.064	0.053	0.011	1.140	0.255
PRE_DUALITY	0.722	0.787	-0.066	-1.842	0.066
Observations	449	210			

Appendix C: PSM Regression of Gap Index on Subsequent Firm Performance, Controlling for CEO Total Pay

This table presents the results from PSM regression of CEO succession gaps on subsequent firm performance controlling for CEO total pay. The dependent variable, PERFORMANCE is the difference in subsequent performance between the treatment firm (succession firm) and the average subsequent performance of the matching group (non-succession matched peers), where subsequent performance is defined as ROA (return on total assets) in the year following the succession event. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Poor (Good) Pre-Performance groups are defined if the firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level. Panel A reports estimates of gap index on subsequent firm performance. Panel B reports sub-sample estimates of gap index on subsequent firm performance for forced/ non-forced succession firms while Panel C reports sub-sample estimates of gap index on subsequent firm performance for poor pre-succession performance/ good pre-succession performance firms. Columns 1, 2 and 3 report the estimates of treatment effect on subsequent performance controlling for industry and year fixed effects, for industry, year and industry-year fixed effects and for firm and year fixed effects, respectively. The models include all control variables from Table 2.2 (suppressed) and TOTAL_PAY. Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable: Subsequent Firm Performance						
Variable	1		2		3	
Panel A: PSM Regression of Gap Index on Subsequent Firm Performance						
GAP_INDEX	-0.000		0.004		-0.002	
	(-0.04)		(1.04)		(-0.55)	
FORCED	-0.005		-0.011		0.005	
	(-0.35)		(-0.82)		(0.35)	
PRE_PERFORMANCE	-0.396***		-0.416***		-0.157***	
	(-10.80)		(-11.97)		(-2.89)	
TOTAL_PAY	0.000		0.001		-0.001	
	(0.10)		(0.34)		(-0.17)	
Other Controls	Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		No	
Year Fixed Effects	Yes		Yes		Yes	
Industry*Year Fixed Effects	No		Yes		No	
Firm Fixed Effects	No		No		Yes	
R-Squared	0.376		0.425		0.506	
Observations	605		605		605	
Panel B: PSM Regression of Gap Index on Subsequent Firm Performance – Forced vs. Non-Forced	Forced			Non-Forced		
	1	2	3	1	2	3
GAP_INDEX	-0.011**	-0.010**	-0.012**	0.007*	0.012***	0.005
	(-2.44)	(-2.20)	(-2.44)	(1.78)	(3.01)	(1.32)
PRE_PERFORMANCE	-0.425***	-0.458***	-0.145***	-0.383***	-0.423***	-0.060
	(-12.14)	(-13.71)	(-2.84)	(-10.37)	(-12.24)	(-1.10)
TOTAL_PAY	0.000	0.001	-0.003	0.001	0.001	-0.002
	(0.06)	(0.49)	(-0.67)	(0.26)	(0.57)	(-0.45)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	No	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year Fixed Effects	No	Yes	No	No	Yes	No
Firm Fixed Effects	No	No	Yes	No	No	Yes
R-Squared	0.457	0.493	0.551	0.406	0.458	0.520
Observations	175	175	175	430	430	430
Panel C: PSM Regression of Gap Index on Subsequent Firm Performance – Poor Pre-Succession Performance vs. Good Pre-Succession Performance	Poor Pre-Succession Performance			Good Pre-Succession Performance		
	1	2	3	1	2	3
GAP_INDEX	-0.022***	-0.021***	-0.025***	0.014***	0.019***	0.012***
	(-3.80)	(-3.44)	(-4.07)	(3.12)	(4.41)	(2.69)
FORCED	0.001	-0.003	0.005	0.050***	0.043**	0.068***
	(0.05)	(-0.14)	(0.25)	(2.73)	(2.36)	(3.56)
PRE_PERFORMANCE	-0.411***	-0.452***	-0.129***	-0.406***	-0.447***	-0.067
	(-11.73)	(-13.68)	(-2.59)	(-11.15)	(-13.14)	(-1.24)
TOTAL_PAY	-0.000	0.001	-0.003	0.001	0.002	-0.003
	(-0.08)	(0.40)	(-0.66)	(0.32)	(0.73)	(-0.76)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	No	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year Fixed Effects	No	Yes	No	No	Yes	No
Firm Fixed Effects	No	No	Yes	No	No	Yes
R-Squared	0.464	0.503	0.559	0.425	0.479	0.527
Observations	298	298	298	307	307	307

Appendix D: PSM Regression of Individual Gap Measures on Subsequent Firm Performance

This table presents the results from PSM regression of each CEO attributes used in the CEO succession gap index on subsequent firm performance. The dependent variable, PERFORMANCE is the difference in subsequent performance between the treatment firm (succession firm) and the average subsequent performance of the matching group (non-succession matched peers), where subsequent performance is defined as ROA (return on total assets) in the year following the succession event. The state variable GAP_INDEX is constructed as follows. For every difference between the predecessor and the successor with regard to their gender/ age/ cultural background/ highest education level and eliteness of undergraduate school, one point is added to the index. FORCED is a dummy variable equals to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997). Poor (Good) Pre-Performance groups are defined if the firm's pre-succession firm performance is lower (higher) than its industry median in the given fiscal year in my sample, with industry defined at the two-digit SIC code level. Panel A reports estimates of individual gap measures on subsequent firm performance. Panel B reports sub-sample estimates of individual gap measures on subsequent firm performance for forced succession firms. Panel C reports sub-sample estimates of individual gap measures on subsequent firm performance for non-forced succession firms. Panel D reports sub-sample estimates of individual gap measures on subsequent firm performance for poor pre-succession performance firms while Panel E reports sub-sample estimates of individual gap measures on subsequent firm performance for good pre-succession performance firms. Regression includes firm and year fixed effects. The models include all control variables from Table 2.2 (suppressed). Definitions of control variables are provided in Appendix A. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable: Subsequent Firm Performance

Panel A: PSM Regression of Individual Gap Measures on Subsequent Firm Performance	Full-Sample					
	GENDER_GAP	AGE_GAP	CAREER_VARIETY_GAP	CULTURAL_GAP	HIGHEST_EDU_GAP	ELITE_EDU_GAP
GAP_MEASURE	0.063**	-0.013	-0.006	0.030**	-0.021**	-0.049***
	(2.56)	(-0.86)	(-0.64)	(1.97)	(-2.13)	(-3.69)
FORCED	-0.003	-0.001	0.001	-0.011	0.015	0.014
	(-0.29)	(-0.06)	(0.09)	(-0.84)	(1.11)	(1.12)
PRE_PERFORMANCE	-0.085	-0.080	-0.084	-0.166***	-0.075	-0.070
	(-1.60)	(-1.50)	(-1.57)	(-3.07)	(-1.41)	(-1.32)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.465	0.462	0.459	0.506	0.468	0.510
Observations	605	605	605	605	605	605
Panel B: PSM Regression of Individual Gap Measures on Subsequent Firm Performance – Forced Succession Firms	Forced Succession Firms					
	GENDER_GAP	AGE_GAP	CAREER_VARIETY_GAP	CULTURAL_GAP	HIGHEST_EDU_GAP	ELITE_EDU_GAP
GAP_MEASURE	-0.072	-0.058**	-0.031**	-0.022	-0.021*	-0.089***
	(-1.09)	(-2.17)	(-2.04)	(-1.27)	(-1.70)	(-4.88)
PRE_PERFORMANCE	-0.181***	-0.177***	-0.179***	-0.169***	-0.161***	-0.160***
	(-3.72)	(-3.64)	(-3.68)	(-3.40)	(-3.23)	(-3.24)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.535	0.541	0.536	0.554	0.518	0.560
Observations	175	175	175	175	175	175
Panel C: PSM Regression of Individual Gap Measures on Subsequent Firm Performance – Non-Forced Succession Firms	Non-Forced Succession Firms					
	GENDER_GAP	AGE_GAP	CAREER_VARIETY_GAP	CULTURAL_GAP	HIGHEST_EDU_GAP	ELITE_EDU_GAP
GAP_MEASURE	0.076***	0.004	0.003	0.070***	-0.015	-0.021

	(3.12)	(0.27)	(0.27)	(3.72)	(-1.40)	(-1.41)
PRE_PERFORMANCE	-0.002	-0.001	-0.007	-0.078	0.009	0.009
	(-0.03)	(-0.02)	(-0.12)	(-1.44)	(0.16)	(0.17)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.516	0.509	0.504	0.529	0.512	0.512
Observations	430	430	430	430	430	430
Panel D: PSM Regression of Individual Gap Measures on Subsequent Firm Performance – Poor Pre-Succession Performance Firms	Poor Pre-Succession Performance Firms					
	GENDER_GAP	AGE_GAP	CAREER_VARIETY_GAP	CULTURAL_GAP	HIGHEST_EDU_GAP	ELITE_EDU_GAP
GAP_MEASURE	-0.043	-0.052**	-0.068***	-0.002	-0.076***	-0.058***
	(-1.26)	(-2.47)	(-4.80)	(-0.08)	(-5.40)	(-3.23)
FORCED	-0.055***	-0.046***	-0.026*	-0.047***	0.000	-0.033**
	(-4.08)	(-3.28)	(-1.81)	(-2.77)	(0.03)	(-2.14)
PRE_PERFORMANCE	-0.068	-0.066	-0.062	-0.158***	-0.049	-0.040
	(-1.41)	(-1.36)	(-1.27)	(-3.22)	(-0.99)	(-0.81)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.537	0.541	0.553	0.554	0.558	0.548
Observations	298	298	298	298	298	298
Panel E: PSM Regression of Individual Gap Measures on Subsequent Firm Performance –Good Pre-Succession Performance Firms	Good Pre-Succession Performance Firms					
	GENDER_GAP	AGE_GAP	CAREER_VARIETY_GAP	CULTURAL_GAP	HIGHEST_EDU_GAP	ELITE_EDU_GAP
GAP_MEASURE	0.155***	0.025	0.030**	0.059***	0.027**	-0.020
	(5.32)	(1.38)	(2.53)	(3.23)	(2.30)	(-1.20)
FORCED	0.097***	0.095***	0.085***	0.071***	0.085***	0.099***
	(5.61)	(5.41)	(4.61)	(3.80)	(4.73)	(5.75)
PRE_PERFORMANCE	-0.091*	-0.087*	-0.095*	-0.076	-0.082	-0.084
	(-1.76)	(-1.66)	(-1.82)	(-1.40)	(-1.58)	(-1.62)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.539	0.518	0.520	0.528	0.525	0.522
Observations	307	307	307	307	307	307

Appendix E: Description of Variables

Variables	Definition
ROA	Return on total assets, defined as earnings before interest, taxes, depreciation and amortization over total assets.
SIZE	Natural logarithm of the book value of total assets.
FIRM_AGE	Natural logarithm of the number of years since the firm was established.
MTB	Market capitalization over book value of total assets, where market capitalization is calculated as: annual close price*Common shares outstanding + total debt in current liabilities + total long-term debt + preferred stock (liquidating value) - deferred taxes and investment tax credit.
SALES_GROWTH	Annual percentage increase in sales.
LEV_TDA	Book leverage of total debt, defined as the sum of the firm's debt in current liabilities and long-term debt scaled by book value of total assets.
RND	Research and development, defined as research and development expenditure scaled by sales.
CAPEX	Capital expenditure over total assets.
LOG_DELTA	Natural logarithm of the dollar change in the CEO's wealth associated with a 1% change in the firm's stock price (in $000s)
LOG_VEGA	Natural logarithm of the dollar change in the CEO's wealth associated with a 1% change in the standard deviation of the firm's returns (in $000s)
BOARDSIZE	Total number of directors.
BOARD_IND	The proportion of independent directors on the board.
OVERCONFIDENCE	OVERCONFIDENCE is a dummy variable equal to one if a CEO fails to exercise options when the average moneyness is over 100% in the succession year or in the fiscal year following the succession event. The latter is where the average moneyness of the CEO's unexercised exercisable options is calculated as the per-option realizable value (defined as the estimated value of in-the-money unexercised exercisable options over the number of unexercised exercisable options) divided by the estimated average strike price (defined as the fiscal year-end stock price less per-option realizable value).
TOTAL_PAY	Natural logarithm of CEO's total annual compensation.
FORCED	A dummy variable equal to one if the predecessor is forced out and zero otherwise. The classification of succession events into forced/ non-forced follows the method used by Parrino (1997).
POOR_PRE_PERF	A dummy variable equal to one if the firm's pre-succession financial performance and stock return are lower than its industry median in the given fiscal year in my sample and zero otherwise, with industry defined at the two-digit SIC code level.
OUTSIDER	A dummy variable indicating successor origin, which is equal to one if the new CEO was employed by the firm for less than one year before he/ she assumed office and zero otherwise.
SUBSTITUTABILITY	Product substitutability, defined as the the sum of industry sales divided by the sum of the industrial segment operating cost for a given firm, using data points from sample firms only, with industry defined at the two-digit SIC code level. Where, operating cost is the sum of cost of goods sold (COGS), selling, general and administrative expense (SGA) and depreciation and amortization (DA).
SI	Strategic instability. Four individual strategic measures are used: (1) plant and equipment newness (net PPE/gross PPE), (2) nonproduction overhead (selling, general and administrative expenses/sales), (3) inventory level (inventories/sales), and (4) financial leverage (total debt/common equity). I first compute the pre-succession three-year variance $\frac{\sum(t_i-T)^2}{(n-1)}$ for each of the aforementioned strategic dimensions. Then I standardize the variance for each dimension by industry at the four-digit SIC code level, using data points from sample firms only. Finally the strategic instability measure is generated by summing the four standardized variance scores.
SD	Strategic difference. Four individual strategic measures are used: (1) plant and equipment newness (net PPE/gross PPE), (2) nonproduction overhead (selling, general and administrative expenses/sales), (3) inventory level (inventories/sales), and (4) financial leverage (total debt/common equity). Each strategic dimension are standardized by industry at the four-digit SIC code level,

	using data points from sample firms only at the given fiscal year. Then, absolute difference for each strategic dimension between a firm and its competitor in the same industry is calculated by subtracting industrial mean from the firm's score. Finally, the strategic difference measure is generated by summing the four absolute differences for each of the strategic dimension.
DIV_COVERAGE	Dividend coverage ratio, net income divided by common dividends.
INTEREST_COVERAGE	Interest coverage ratio, operating earnings (EBITDA) divided by interest expense.
LEV_TDA_ADJ	Firm i's total debt ratio (as measured by the sum of the firm's debt in current liabilities and long-term debt scaled by book value of total assets) less the industry median total debt ratio, with industry defined at the two-digit SIC code level.
CAPEX_ADJ	Firm i's capital expenditure (as measured by capital expenditure over total assets) less the industry median capital expenditure, with industry defined at the two-digit SIC code level.
RND_ADJ	Firm i's R&D (as measured by research and development expenditure over sales) less the industry median R&D intensity, with industry defined at the two-digit SIC code level.

Appendix F: CEO Risk-Taking Gap Index and Subsequent Firm Risk-Taking Using Daily Stock Returns

This table presents the results from PSM regression of CEO succession risk-taking gap index on subsequent firm risk. The dependent variable, TE is the difference in subsequent firm risk-taking between the treatment firm (succession firm) and the matching group (non-succession matched peers) one year following the succession event. Firm risk measurements include: (1) total risk (STKVOL), defined as the annualized standard deviation of daily stock returns, (2) systematic risk (SYSVOL), defined as the standard deviation of the product of the firm's beta (calculated by using the market model and regressing the firm's monthly stock return on CRSP value-weighted market return) times market daily returns, and (3) idiosyncratic risk (IDIO_STKVOL), defined as the annualized standard deviation of daily stock return residuals. The state variable — GAP_INDEX_RISK is constructed as follows. I add one point if the succession is characterized by male replacing female/ young replacing old with a minimum of 13.84 years age difference/ U.S. CEO replacing non-U.S. CEO/ general manager replacing industry specialist/ CEO with a technical educational background replacing one who does not. The risk gap index ranges from zero to five, with the minimum value indicating a successor aligning closely to the predecessor with regard to their risk-taking tendency as measured by personal traits and backgrounds, and the maximum value suggesting that the successor's risk propensity is considerably higher than his/ her predecessor. All regressions include firm and year fixed effects. The models include all control variables from Table 2 (suppressed). Control variables definitions are provided in Appendix E. t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Variable	Total Risk	Systematic Risk	Idiosyncratic Risk
Panel A: Risk-Taking Gap Index and Subsequent Firm Risk			
GAP_INDEX_RISK	0.002**	0.002**	0.001
	(2.183)	(2.200)	(1.403)
Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	633	633	633
R-squared	0.301	0.334	0.239
Panel B: the Interaction Effect of Risk-Taking Gap Index and Forced Removal on Subsequent Firm Risk			
GAP_INDEX_RISK	0.000	0.001	-0.001
	(0.032)	(1.423)	(-1.153)
FORCED	-0.001	-0.001	-0.001
	(-0.444)	(-0.627)	(-0.320)
FORCED*GAP_INDEX_RISK	0.006**	0.002	0.006***
	(2.322)	(0.808)	(2.908)
Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	633	633	633
R-squared	0.313	0.335	0.261
Panel C: the Interaction Effect of Risk-Taking Gap Index and Poor Past Performance on Subsequent Firm Risk			
GAP_INDEX_RISK	-0.000	0.001	-0.001
	(-0.024)	(1.520)	(-1.366)
POOR_PRE_PERF	-0.000	-0.001	0.000
	(-0.469)	(-0.965)	(0.132)
POOR_PRE_PERF*GAP_INDEX_RISK	0.013***	0.002	0.013***
	(5.117)	(1.082)	(6.813)
Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	633	633	633
R-squared	0.337	0.337	0.308
Panel D: the Interaction Effect of Risk-Taking Gap Index and External Succession on Subsequent Firm Risk			
GAP_INDEX_RISK	-0.001	0.000	-0.001
	(-0.520)	(0.301)	(-1.528)

OUTSIDER	0.002	0.001	0.001
	(0.999)	(0.529)	(1.092)
OUTSIDER*GAP_INDEX_RISK	0.023***	0.011***	0.019***
	(8.840)	(5.894)	(9.602)
Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	633	633	633
R-squared	0.405	0.382	0.370

References

Adams, J. C., & Mansi, S. A. 2009. CEO turnover and bondholder wealth. ***Journal of Banking & Finance***, 33(3): 522-533.

Adams, R., Almeida, H., & Ferreira, D. 2009. Understanding the relationship between founder-CEOs and firm performance. ***Journal of Empirical Finance***, 16(1): 136-150.

Adams, R. B., & Funk, P. 2012. Beyond the glass ceiling: Does gender matter? ***Management Science***, 58(2): 219-235.

Adams, R. B., Licht, A. N., & Sagiv, L. 2011. Shareholders and stakeholders: How do directors decide? ***Strategic Management Journal***, 32(12): 1331-1355.

Agrawal, A., Knoeber, C. R., & Tsoulouhas, T. 2006. Are outsiders handicapped in CEO successions? ***Journal of Corporate Finance***, 12(3): 619-644.

Akhigbe, A., Easterwood, J. C., & Pettit, R. R. 1997. Wealth effects of corporate debt issues: The impact of issuer motivations. ***Financial Management***: 32-47.

Allen, M. P., Panian, S. K., & Lotz, R. E. 1979. Managerial succession and organizational performance: A recalcitrant problem revisited. ***Administrative Science Quarterly***, 24(2): 167-180.

Almog-Bareket, G. 2011. The missing component in MBA programs. ***Management Decision***, 49(10): 1600-1611.

Andrade, G., Mitchell, M., & Stafford, E. 2001. New evidence and perspectives on mergers. ***Journal of Economic Perspectives***, 15(2): 103-120.

Ang, J. S., Chua, J. H., & McConnell, J. J. 1982. The administrative costs of corporate bankruptcy: A note. ***The Journal of Finance***, 37(1): 219-226.

Antonakis, J., House, R. J., & Simonton, D. K. 2017. Can super smart leaders suffer from too much of a good thing? The curvilinear effect of intelligence on perceived leadership behavior. ***Journal of Applied Psychology***, 102(7): 1003.

Armstrong, C. S., & Vashishtha, R. 2012. Executive stock options, differential risk-taking incentives, and firm value. ***Journal of Financial Economics***, 104(1): 70-88.

Austin, D. H. 1993. An event-study approach to measuring innovative output: The case of biotechnology. ***The American Economic Review***, 83(2): 253-258.

Ball, R., & Kothari, S. P. 1991. Security returns around earnings announcements. ***Accounting Review***: 718-738.

Ballinger, G. A., & Marcel, J. J. 2010. The use of an interim CEO during succession episodes and firm performance. ***Strategic Management Journal***, 31(3): 262-283.

Barber, B. M., & Darrough, M. N. 1996. Product reliability and firm value: The experience of American and Japanese automakers, 1973-1992. ***Journal of Political Economy***, 104(5): 1084-1099.

Barber, B. M., & Odean, T. 2001. Boys will be boys: Gender, overconfidence, and common stock investment. ***The Quarterly Journal of Economics***, 116(1): 261-292.

Barker III, V. L., & Patterson Jr, P. W. 1996. Top management team tenure and top manager causal attributions at declining firms attempting turnarounds. ***Group and Organization Management***, 21(3): 304-336.

Barker, V. L., & Mueller, G. C. 2002. CEO characteristics and firm R&D spending. ***Management Science***, 48(6): 782-801.

Barnett, M. L., & King, A. A. 2008. Good fences make good neighbors: A longitudinal analysis of an industry self-regulatory institution. ***Academy of Management Journal***, 51(6): 1150-1170.

Barrick, M. R., & Mount, M. K. 1996. Effects of impression management and self-deception on the predictive validity of personality constructs. ***Journal of Applied Psychology***, 81(3): 261.

Barron, J. M., Chulkov, D. V., & Waddell, G. R. 2011. Top management team turnover, CEO succession type, and strategic change. ***Journal of Business Research***, 64(8): 904-910.

Baysinger, B. D., Kosnik, R. D., & Turk, T. A. 1991. Effects of board and ownership structure on corporate R&D strategy. ***Academy of Management Journal***, 34(1): 205-214.

Beatty, R. P., & Zajac, E. J. 1987. CEO change and firm performance in large corporations: Succession effects and manager effects. ***Strategic Management Journal***, 8(4): 305-317.

Behn, B. K., Riley Jr, R. A., & Yang, Y. w. 2005. The value of an heir apparent in succession planning. ***Corporate Governance: An International Review***, 13(2): 168-177.

Benmelech, E., & Frydman, C. 2015. Military CEOs. ***Journal of Financial Economics***, 117(1): 43-59.

Bennedsen, M., Perez-Gonzalez, F., & Wolfenzon, D. 2006. Do CEOs matter? Unpublished Working Paper, Copenhagen Business School, Columbia University and New York University.

Bennedsen, M., Perez-Gonzalez, F., & Wolfenzon, D. 2017. Do CEOs matter? Evidence from CEO hospitalization events. ***Journal of Finance***.

Bernile, G., Bhagwat, V., & Rau, P. R. 2017. What doesn't kill you will only make you more risk-loving: Early-life disasters and CEO behavior. ***The Journal of Finance***, 72(1): 167-206.

Berns, K. V., & Klarner, P. 2017. A review of the CEO succession literature and a future research program. ***Academy of Management Perspectives***, 31(2): 83-108.

Bertrand, M., & Schoar, A. 2003. Managing with style: The effect of managers on firm policies. ***The Quarterly Journal of Economics***, 118(4): 1169-1208.

Bhagat, S., Black, B., & Blair, M. 2004. Relational investing and firm performance. ***Journal of Financial Research***, 27(1): 1-30.

Bhagat, S., Bolton, B. J., & Subramanian, A. 2010. CEO education, CEO turnover, and firm performance. ***Available at SSRN: https://ssrn.com/abstract=1670219 or http://dx.doi.org/10.2139/ssrn.1670219***.

Bhagat, S., Brickley, J. A., & Coles, J. L. 1994. The costs of inefficient bargaining and financial distress: Evidence from corporate lawsuits. ***Journal of Financial Economics***, 35(2): 221-247.

Bhagat, S., & Welch, I. 1995. Corporate research & development investments international comparisons. ***Journal of Accounting and Economics***, 19(2-3): 443-470.

Biggerstaff, L., Cicero, D. C., & Puckett, A. 2016. FORE! An analysis of CEO shirking. ***Management Science***, 63(7): 2302-2322.

Biggs, E. L. 2004. CEO succession planning: An emerging challenge for boards of directors. ***Academy of Management Perspectives***, 18(1): 105-107.

Bigley, G. A., & Wiersema, M. F. 2002. New CEOs and corporate strategic refocusing: How experience as heir apparent influences the use of power. ***Administrative Science Quarterly***, 47(4): 707-727.

Bizjak, J. M., & Coles, J. L. 1995. The effect of private antitrust litigation on the stock-market valuation of the firm. ***The American Economic Review***: 436-461.

Bodie, Z., Kane, A., & Marcus, A. J. 2013. ***Investments and portfolio management:*** McGraw Hill Education (India) Private Limited.

Boehmer, E., Masumeci, J., & Poulsen, A. B. 1991. Event-study methodology under conditions of event-induced variance. ***Journal of Financial Economics***, 30(2): 253-272.

Bonnier, K.-A., & Bruner, R. F. 1989. An analysis of stock price reaction to management change in distressed firms. ***Journal of Accounting and Economics***, 11(1): 95-106.

Boone, A. L., Field, L. C., Karpoff, J. M., & Raheja, C. G. 2007. The determinants of corporate board size and composition: An empirical analysis. ***Journal of Financial Economics***, 85(1): 66-101.

Booth, J. R., Cornett, M. M., & Tehranian, H. 2002. Boards of directors, ownership, and regulation. ***Journal of Banking & Finance***, 26(10): 1973-1996.

Borokhovich, K. A., Brunarski, K. R., Donahue, M. S., & Harman, Y. S. 2006. The importance of board quality in the event of a CEO death. ***Financial Review***, 41(3): 307-337.

Borokhovich, K. A., Parrino, R., & Trapani, T. 1996. Outside directors and CEO selection. ***Journal of Financial and Quantitative Analysis***, 31(3): 337-355.

Bosch, J. C., & Lee, I. 1994. Wealth effects of Food and Drug Administration (FDA) decisions. ***Managerial and Decision Economics***, 15(6): 589-599.

Boyd, B. K. 1995. CEO duality and firm performance: A contingency model. ***Strategic Management Journal***, 16(4): 301-312.

Brady, D., Isaacs, K., Reeves, M., Burroway, R., & Reynolds, M. 2011. Sector, size, stability, and scandal: Explaining the presence of female executives in Fortune 500 firms. ***Gender in Management: An International Journal***, 26(1): 84-105.

Brady, G. F., & Helmich, D. L. 1984. ***Executive succession: Toward excellence in corporate leadership:*** Prentice Hall.

Bromiley, P. 1991. Testing a causal model of corporate risk taking and performance. ***Academy of Management Journal***, 34(1): 37-59.

Brooks, R. M., Patel, A., & Su, T. 2003. How the equity market responds to unanticipated events. ***The Journal of Business***, 76(1): 109-133.

Brown, M. C. 1982. Administrative succession and organizational performance: The succession effect. ***Administrative Science Quarterly***, 27(1): 1-16.

Brown, S. J., & Warner, J. B. 1985. Using daily stock returns: The case of event studies. ***Journal of Financial Economics***, 14(1): 3-31.

Cai, Y., & Sevilir, M. 2012. Board connections and M&A transactions. ***Journal of Financial Economics***, 103(2): 327-349.

Cain, M. D., & McKeon, S. B. 2016. CEO personal risk-taking and corporate policies. ***Journal of Financial and Quantitative Analysis***, 51(1): 139-164.

Callen, J. L., Livnat, J., & Segal, D. 2006. The information content of SEC filings and information environment: A variance decomposition analysis. ***The Accounting Review***, 81(5): 1017-1043.

Campbell, T. C., Gallmeyer, M., Johnson, S. A., Rutherford, J., & Stanley, B. W. 2011. CEO optimism and forced turnover. ***Journal of Financial Economics***, 101(3): 695-712.

Cannella, A. A., & Lubatkin, M. 1993. Succession as a sociopolitical process: Internal impediments to outsider selection. ***Academy of Management Journal***, 36(4): 763-793.

Cao, Q., Simsek, Z., & Jansen, J. J. 2015. CEO social capital and entrepreneurial orientation of the firm: Bonding and bridging effects. ***Journal of Management***, 41(7): 1957-1981.

Capron, L., & Pistre, N. 2002. When do acquirers earn abnormal returns? ***Strategic Management Journal***, 23(9): 781-794.

Carhart, M. M. 1997. On persistence in mutual fund performance. ***The Journal of Finance***, 52(1): 57-82.

Carol, G. 1982. ***In a different voice: Psychological theory and women's development***. MA: Harvard: Cambridge.

Cassell, C. A., Huang, S. X., Sanchez, J. M., & Stuart, M. D. 2012. Seeking safety: The relation between CEO inside debt holdings and the riskiness of firm investment and financial policies. ***Journal of Financial Economics***, 103(3): 588-610.

Chaganti, R., & Sambharya, R. 1987. Strategic orientation and characteristics of upper management. ***Strategic Management Journal***, 8(4): 393-401.

Chaney, P. K., Devinney, T. M., & Winer, R. S. 1991. The impact of new product introductions on the market value of firms. ***Journal of Business***: 573-610.

Chatterjee, A., & Hambrick, D. C. 2007. It's all about me: Narcissistic chief executive officers and their effects on company strategy and performance. ***Administrative Science Quarterly***, 52(3): 351-386.

Chen, G., Luo, S., Tang, Y., & Tong, J. Y. 2015. Passing probation: Earnings management by interim CEOs and its effect on their promotion prospects. ***Academy of Management Journal***, 58(5): 1389-1418.

Cheng, I.-H., Hong, H., & Scheinkman, J. A. 2015. Yesterday's heroes: Compensation and risk at financial firms. ***The Journal of Finance***, 70(2): 839-879.

Chevalier, J., & Ellison, G. 1999. Career concerns of mutual fund managers. ***The Quarterly Journal of Economics***, 114(2): 389-432.

Child, J. 1974. Managerial and organizational factors associated with company performance part I. ***Journal of Management Studies***, 11(3): 175-189.

Chiu, S.-c., Johnson, R. A., Hoskisson, R. E., & Pathak, S. 2016. The impact of CEO successor origin on corporate divestiture scale and scope change. ***The Leadership Quarterly***, 27(4): 617-633.

Chown, S. M. 1961. Age and the rigidities. ***Journal of Gerontology***, 16: 353-362.

Chung, R., Firth, M., & Kim, J.-B. 2002. Institutional monitoring and opportunistic earnings management. ***Journal of Corporate Finance***, 8(1): 29-48.

Cline, B. N., & Yore, A. S. 2016. Silverback CEOs: Age, experience, and firm value. ***Journal of Empirical Finance***, 35: 169-188.

Coles, J. L., Daniel, N. D., & Naveen, L. 2006. Managerial incentives and risk-taking. ***Journal of Financial Economics***, 79(2): 431-468.

Coles, J. L., Daniel, N. D., & Naveen, L. 2014. Co-opted boards. ***The Review of Financial Studies***, 27(6): 1751-1796.

Cooper, M. J., Dimitrov, O., & Rau, P. R. 2001. A rose. com by any other name. ***The Journal of Finance***, 56(6): 2371-2388.

Cooper, M. J., Gulen, H., & Rau, P. R. 2005. Changing names with style: Mutual fund name changes and their effects on fund flows. ***The Journal of Finance***, 60(6): 2825-2858.

Core, J., & Guay, W. 2002. Estimating the value of employee stock option portfolios and their sensitivities to price and volatility. ***Journal of Accounting Research***, 40(3): 613-630.

Corwin, S. A. 2003. The determinants of underpricing for seasoned equity offers. ***The Journal of Finance***, 58(5): 2249-2279.

Coughlan, A. T., & Schmidt, R. M. 1985. Executive compensation, management turnover, and firm performance: An empirical investigation. ***Journal of Accounting and Economics***, 7(1-3): 43-66.

Cox, P., Brammer, S., & Millington, A. 2004. An empirical examination of institutional investor preferences for corporate social performance. ***Journal of Business Ethics***, 52(1): 27-43.

Cronqvist, H., Makhija, A. K., & Yonker, S. E. 2012. Behavioral consistency in corporate finance: CEO personal and corporate leverage. ***Journal of Financial Economics***, 103(1): 20-40.

Cucculelli, M., & Micucci, G. 2008. Family succession and firm performance: Evidence from Italian family firms. ***Journal of Corporate Finance***, 14(1): 17-31.

Custódio, C., Ferreira, M. A., & Matos, P. 2013. Generalists versus specialists: Lifetime work experience and chief executive officer pay. ***Journal of Financial Economics***, 108(2): 471-492.

Custódio, C., & Metzger, D. 2013. How do CEOs matter? The effect of industry expertise on acquisition returns. ***The Review of Financial Studies***, 26(8): 2008-2047.

Custódio, C., & Metzger, D. 2014. Financial expert CEOs: CEO's work experience and firm's financial policies. ***Journal of Financial Economics***, 114(1): 125-154.

Dalton, D. R., & Kesner, I. F. 1983. Inside/ outside succession and organizational size: The pragmatics of executive replacement. ***Academy of Management Journal***, 26(4): 736-742.

Daniel, K., Hirshleifer, D., & Teoh, S. H. 2002. Investor psychology in capital markets: Evidence and policy implications. ***Journal of Monetary Economics***, 49(1): 139-209.

Datta, D. K., & Rajagopalan, N. 1998. Industry structure and CEO characteristics: An empirical study of succession events. ***Strategic Management Journal***, 19(9): 833-852.

Datta, D. K., Rajagopalan, N., & Zhang, Y. 2003. New CEO openness to change and strategic persistence: The moderating role of industry characteristics. ***British Journal of Management***, 14(2): 101-114.

Davidson III, W. N., Nemec, C., & Worrell, D. L. 2001. Succession planning vs. agency theory: A test of Harris and Helfat's interpretation of plurality announcement market returns. ***Strategic Management Journal***, 22(2): 179-184.

Davidson III, W. N., Worrell, D. L., & Cheng, L. 1990. Key executive succession and stockholder wealth: The influence of successorys origin, position, and age. ***Journal of Management***, 16(3): 647-664.

Davidson III, W. N., Worrell, D. L., & Dutia, D. 1993. The stock market effects of CEO succession in bankrupt firms. ***Journal of Management***, 19(3): 517-533.

Davidson, W. N., Nemec, C., Worrell, D. L., & Lin, J. 2002. Industrial origin of CEOs in outside succession: Board preference and stockholder reaction. ***Journal of Management and Governance***, 6(4): 295-321.

Dechow, P. M., & Sloan, R. G. 1991. Executive incentives and the horizon problem: An empirical investigation. ***Journal of accounting and Economics***, 14(1): 51-89.

Denis, D. J., & Denis, D. K. 1995. Performance changes following top management dismissals. ***The Journal of finance***, 50(4): 1029-1057.

Denis, D. J., & Serrano, J. M. 1996. Active investors and management turnover following unsuccessful control contests. ***Journal of Financial Economics***, 40(2): 239-266.

Desai, M. A., & Jin, L. 2011. Institutional tax clienteles and payout policy. ***Journal of Financial Economics***, 100(1): 68-84.

Dharwadkar, R., Goranova, M., Brandes, P., & Khan, R. 2008. Institutional ownership and monitoring effectiveness: It's not just how much but what else you own. ***Organization Science***, 19(3): 419-440.

Duchin, R., Simutin, M., & Sosyura, D. 2018. The origins and real effects of the gender gap: Evidence from CEOS' formative years. Unpublished Working Paper, University of Washington, University of Toronto and Arizona State University.

Dunn, D. J. 1987. Directors arent doing their jobs, ***Fortune***: 117-119.

Eduardo, M., & Poole, B. 2016. CEO age and gender: Subsequent market performance. ***Cogent Business & Management***, 3(1): 1146389.

Eisfeldt, A. L., & Kuhnen, C. M. 2013. CEO turnover in a competitive assignment framework. ***Journal of Financial Economics***, 109(2): 351-372.

Elsaid, E., & Ursel, N. D. 2011. CEO succession, gender and risk taking. ***Gender in Management: An International Journal***, 26(7): 499-512.

Elsaid, E., Wang, X., & Davidson III, W. N. 2011. Does experience matter? CEO successions by former CEOs. ***Managerial Finance***, 37(10): 915-939.

Faccio, M., Marchica, M.-T., & Mura, R. 2016. CEO gender, corporate risk-taking, and the efficiency of capital allocation. ***Journal of Corporate Finance***, 39: 193-209.

Fahlenbrach, R. 2009. Founder-CEOs, investment decisions, and stock market performance. ***Journal of Financial and Quantitative Analysis***, 44(2): 439-466.

Fahlenbrach, R., & Stulz, R. M. 2009. Managerial ownership dynamics and firm value. ***Journal of Financial Economics***, 92(3): 342-361.

Fama, E. F. 1991. Efficient capital markets: II. ***The Journal of Finance***, 46(5): 1575-1617.

Farjoun, M. 2007. The end of strategy? ***Strategic Organization***, 5(3): 197-210.

Farrell, K. A., & Whidbee, D. A. 2002. Monitoring by the financial press and forced CEO turnover. ***Journal of Banking & Finance***, 26(12): 2249-2276.

Finkelstein, S., & Boyd, B. K. 1998. How much does the CEO matter? The role of managerial discretion in the setting of CEO compensation. ***Academy of Management Journal***, 41(2): 179-199.

Finkelstein, S., & Hambrick, D. C. 1990. Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion. ***Administrative Science Quarterly***, 35(3): 484-503.

Frank, M. Z., & Goyal, V. K. 2007. Corporate leverage: How much do managers really matter? ***Available at SSRN: https://ssrn.com/abstract=971082 or http://dx.doi.org/10.2139/ssrn.971082***.

Frank, M. Z., & Goyal, V. K. 2009. Capital structure decisions: Which factors are reliably important? ***Financial Management***, 38(1): 1-37.

Frankel, R., & Li, X. 2004. Characteristics of a firm's information environment and the information asymmetry between insiders and outsiders. ***Journal of Accounting and Economics***, 37(2): 229-259.

Franks, J., Harris, R., & Titman, S. 1991. The postmerger share-price performance of acquiring firms. ***Journal of Financial Economics***, 29(1): 81-96.

Friedman, S. D., & Saul, K. 1991. A leader's wake: Organization member reactions to CEO succession. ***Journal of Management***, 17(3): 619-642.

Friedman, S. D., & Singh, H. 1989. CEO succession and stockholder reaction: The influence of organizational context and event content. ***Academy of Management Journal***, 32(4): 718-744.

Furtado, E. P., & Rozeff, M. S. 1987. The wealth effects of company initiated management changes. ***Journal of Financial Economics***, 18(1): 147-160.

Gahlon, J. M., & Gentry, J. A. 1982. On the relationship between systematic risk and the degrees of operating and financial leverage. ***Financial Management***: 15-23.

Galasso, A., & Simcoe, T. S. 2011. CEO overconfidence and innovation. ***Management Science***, 57(8): 1469-1484.

Gamson, W. A., & Scotch, N. A. 1964. ***Scapegoating in baseball:*** University of Chicago Press.

Gangloff, K. A., Connelly, B. L., & Shook, C. L. 2016. Of scapegoats and signals: Investor reactions to CEO succession in the aftermath of wrongdoing. ***Journal of Management***, 42(6): 1614-1634.

Gao, J., & Xie, X. 2018. Interim CEO as a firm strategy: An information asymmetry framework. Paper presented at the Academy of Management Proceedings.

Giannetti, M. 2011. Serial CEO incentives and the structure of managerial contracts. ***Journal of Financial Intermediation***, 20(4): 633-662.

Gomulya, D., & Boeker, W. 2014. How firms respond to financial restatement: CEO successors and external reactions. ***Academy of Management Journal***, 57(6): 1759-1785.

Gopalan, R., A. Gormley, T., & Kalda, A. 2018. Director bankruptcy experience and corporate risk taking. Unpublished Working Paper, Washington University and Indiana University.

Görlitz, K., & Tamm, M. 2015. Parenthood and risk preferences. ***Available at SSRN: https://ssrn.com/abstract=2618442 or http://dx.doi.org/10.2139/ssrn.2618442***.

Gounopoulos, D., & Pham, H. 2018. Financial expert CEOs and earnings management around initial public offerings. ***The International Journal of Accounting***, 53(2): 102-117.

Goyal, V. K., Lehn, K., & Racic, S. 2002. Growth opportunities and corporate debt policy: the case of the US defense industry. ***Journal of Financial Economics***, 64(1): 35-59.

Grable, J. E. 2000. Financial risk tolerance and additional factors that affect risk taking in everyday money matters. ***Journal of Business and Psychology***, 14(4): 625-630.

Graham, J. R., Harvey, C. R., & Puri, M. 2013. Managerial attitudes and corporate actions. ***Journal of Financial Economics***, 109(1): 103-121.

Graham, J. R., Harvey, C. R., & Puri, M. 2015. Capital allocation and delegation of decision-making authority within firms. ***Journal of Financial Economics***, 115(3): 449-470.

Greene, J. T., & Watts, S. G. 1996. Price discovery on the NYSE and the NASDAQ: The case of overnight and daytime news releases. ***Financial Management***: 19-42.

Greiner, L., Cummings, T., & Bhambri, A. 2003. When new CEOs succeed and fail: 4-D theory of strategic transformation. ***Organizational Dynamics***, 32(1): 1-16.

Griffin, P. A., Grundfest, J. A., & Perino, M. A. 2004. Stock price response to news of securities fraud litigation: an analysis of sequential and conditional information. ***Abacus***, 40(1): 21-48.

Gruber, M. J., & Warner, J. B. 1977. Bankruptcy costs: Some evidence. ***The Journal of Finance***, 32(2): 337-347.

Grullon, G., & Michaely, R. 2004. The information content of share repurchase programs. ***The Journal of Finance***, 59(2): 651-680.

Grusky, O. 1963. Managerial succession and organizational effectiveness. ***American Journal of Sociology***, 69(1): 21-31.

Guest, P. M. 2009. The impact of board size on firm performance: Evidence from the UK. ***The European Journal of Finance***, 15(4): 385-404.

Guo, L., & Masulis, R. W. 2015. Board structure and monitoring: New evidence from CEO turnovers. ***The Review of Financial Studies***, 28(10): 2770-2811.

Hackbarth, D. 2008. Managerial traits and capital structure decisions. ***Journal of Financial and Quantitative Analysis***, 43(4): 843-881.

Hamada, R. S. 1972. The effect of the firm's capital structure on the systematic risk of common stocks. ***The Journal of Finance***, 27(2): 435-452.

Hambrick, D. C., & Mason, P. A. 1984. Upper echelons: The organization as a reflection of its top managers. ***Academy of Management Review***, 9(2): 193-206.

Hambrick, D. C., & Schecter, S. M. 1983. Turnaround strategies for mature industrial-product business units. ***Academy of Management Journal***, 26(2): 231-248.

Hamori, M., & Koyuncu, B. 2015. Experience matters? The impact of prior CEO experience on firm performance. ***Human Resource Management***, 54(1): 23-44.

Hannan, M. T., & Freeman, J. 1984. Structural inertia and organizational change. ***American Sociological Review***, 49(2): 149-164.

Haslam, S. A., & Ryan, M. K. 2008. The road to the glass cliff: Differences in the perceived suitability of men and women for leadership positions in succeeding and failing organizations. ***The Leadership Quarterly***, 19(5): 530-546.

Haveman, H. A. 1992. Between a rock and a hard place: Organizational change and performance under conditions of fundamental environmental transformation. ***Administrative Science Quarterly***, 37(1): 48-75.

Hayes, R. M., & Schaefer, S. 1999. How much are differences in managerial ability worth? ***Journal of Accounting and Economics***, 27(2): 125-148.

Hazarika, S., Karpoff, J. M., & Nahata, R. 2012. Internal corporate governance, CEO turnover, and earnings management. ***Journal of Financial Economics***, 104(1): 44-69.

He, L., Wan, H., & Zhou, X. 2014. How are political connections valued in China? Evidence from market reaction to CEO succession. ***International Review of Financial Analysis***, 36: 141-152.

Healy, P. M., & Palepu, K. G. 1988. Earnings information conveyed by dividend initiations and omissions. ***Journal of Financial Economics***, 21(2): 149-175.

Helgesen, S. 1995. ***The female advantage: Women's ways of leadership***: Crown Business.

Henderson, M. T., Hutton, I., Jiang, D., & Pierson, M. 2017. Lawyer CEOs. ***Available at SSRN: https://ssrn.com/abstract=2923136 or http://dx.doi.org/10.2139/ssrn.2923136***.

Hendricks, K. B., & Singhal, V. R. 1996. Quality awards and the market value of the firm: An empirical investigation. ***Management Science***, 42(3): 415-436.

Hermalin, B. E. 2005. Trends in corporate governance. ***The Journal of Finance***, 60(5): 2351-2384.

Herrmann, P., & Datta, D. K. 2002. CEO successor characteristics and the choice of foreign market entry mode: An empirical study. ***Journal of International Business Studies***, 33(3): 551-569.

Himmelberg, C. P., Hubbard, R. G., & Palia, D. 1999. Understanding the determinants of managerial ownership and the link between ownership and performance. ***Journal of Financial Economics***, 53(3): 353-384.

Hirshleifer, D. 2001. Investor psychology and asset pricing. ***The Journal of Finance***, 56(4): 1533-1597.

Hirshleifer, D., Low, A., & Teoh, S. H. 2012. Are overconfident CEOs better innovators? ***The Journal of Finance***, 67(4): 1457-1498.

Hirshleifer, D., & Shumway, T. 2003. Good day sunshine: Stock returns and the weather. ***The Journal of Finance***, 58(3): 1009-1032.

Hirshleifer, D., & Thakor, A. V. 1992. Managerial conservatism, project choice, and debt. ***The Review of Financial Studies***, 5(3): 437-470.

Hite, G. L., & Owers, J. E. 1983. Security price reactions around corporate spin-off announcements. ***Journal of Financial Economics***, 12(4): 409-436.

Holmstrom, B. 1979. Moral hazard and observability. ***Bell Journal of Economics***, 10(1): 74-91.

Holmström, B. 1999. Managerial incentive problems: A dynamic perspective. ***The Review of Economic Studies***, 66(1): 169-182.

Hong, H., Kubik, J. D., & Solomon, A. 2000. Security analysts' career concerns and herding of earnings forecasts. ***The Rand Journal of Economics***, 31(1): 121-144.

Huang, J., & Kisgen, D. J. 2013. Gender and corporate finance: Are male executives overconfident relative to female executives? ***Journal of Financial Economics***, 108(3): 822-839.

Huang, R., Tan, K. J. K., & Faff, R. W. 2016. CEO overconfidence and corporate debt maturity. ***Journal of Corporate Finance***, 36: 93-110.

Huson, M. R., Malatesta, P. H., & Parrino, R. 2004. Managerial succession and firm performance. ***Journal of Financial Economics***, 74(2): 237-275.

Hutchinson, M., & Gul, F. A. 2004. Investment opportunity set, corporate governance practices and firm performance. ***Journal of Corporate Finance***, 10(4): 595-614.

Hutzschenreuter, T., Kleindienst, I., & Greger, C. 2012. How new leaders affect strategic change following a succession event: A critical review of the literature. ***The Leadership Quarterly***, 23(5): 729-755.

Inderst, R., & Mueller, H. M. 2010. CEO replacement under private information. ***The Review of Financial Studies***, 23(8): 2935-2969.

Intintoli, V. J. 2013. The effects of succession choice surrounding CEO turnover announcements: Evidence from marathon successions. ***Financial Management***, 42(1): 211-238.

Jalal, A. M., & Prezas, A. P. 2012. Outsider CEO succession and firm performance. ***Journal of Economics and Business***, 64(6): 399-426.

Jauch, L. R., Osborn, R. N., & Glueck, W. F. 1980. Short term financial success in large business organizations: The environment-strategy connection. ***Strategic Management Journal***, 1(1): 49-63.

Jensen, M. C. 1986. Agency costs of free cash flow, corporate finance, and takeovers. ***The American Economic Review***, 76(2): 323-329.

Jenter, D., & Kanaan, F. 2015. CEO turnover and relative performance evaluation. ***The Journal of Finance***, 70(5): 2155-2184.

Jiang, F., Zhu, B., & Huang, J. 2013. CEO's financial experience and earnings management. ***Journal of Multinational Financial Management***, 23(3): 134-145.

John, T. A., & John, K. 1993. Top-management compensation and capital structure. ***The Journal of Finance***, 48(3): 949-974.

Johnson, W. B., Magee, R. P., Nagarajan, N. J., & Newman, H. A. 1985. An analysis of the stock price reaction to sudden executive deaths: Implications for the managerial labor market. ***Journal of Accounting and Economics***, 7(1-3): 151-174.

Judge, T. A., & Bono, J. E. 2001. Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. ***Journal of Applied Psychology***, 86(1): 80-92.

Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. 2002. Personality and leadership: A qualitative and quantitative review. ***Journal of Applied Psychology***, 87(4): 765-780.

Judge, T. A., Colbert, A. E., & Ilies, R. 2004. Intelligence and leadership: A quantitative review and test of theoretical propositions. ***Journal of Applied Psychology***, 89(3): 542-552.

Kahneman, D., & Tversky, A. 1973. On the psychology of prediction. ***Psychological Review***, 80(4): 237.

Kang, E., Ding, D. K., & Charoenwong, C. 2010. Investor reaction to women directors. ***Journal of Business Research***, 63(8): 888-894.

Karaevli, A. 2007. Performance consequences of new CEO 'Outsiderness': Moderating effects of pre-and post-succession contexts. ***Strategic Management Journal***, 28(7): 681-706.

Karaevli, A., & Zajac, E. J. 2013. When do outsider CEOs generate strategic change? The enabling role of corporate stability. ***Journal of Management Studies***, 50(7): 1267-1294.

Karuna, C. 2007. Industry product market competition and managerial incentives. ***Journal of Accounting and Economics***, 43(2-3): 275-297.

Katz, S., Lilien, S., & Nelson, B. 1985. Stock market behavior around bankruptcy model distress and recovery predictions. ***Financial Analysts Journal***, 41(1): 70-74.

Kesner, I. F., & Dalton, D. R. 1994. Top management turnover and CEO succession: An investigation of the effects of turnover on performance. ***Journal of Management Studies***, 31(5): 701-713.

Kesner, I. F., & Sebora, T. C. 1994. Executive succession: Past, present & future. ***Journal of Management***, 20(2): 327-372.

Khurana, R. 2004. ***Searching for a corporate savior: The irrational quest for charismatic CEOs***. NJ: Princeton: Princeton University Press.

Kim, Y. 1996. Long-term firm performance and chief executive turnover: An empirical study of the dynamics. ***The Journal of Law, Economics, and Organization***, 12(2): 480-496.

King, T., Srivastav, A., & Williams, J. 2016. What's in an education? Implications of CEO education for bank performance. ***Journal of Corporate Finance***, 37: 287-308.

Kini, O., & Williams, R. 2012. Tournament incentives, firm risk, and corporate policies. ***Journal of Financial Economics***, 103(2): 350-376.

Kish-Gephart, J. J., & Tochman Campbell, J. 2015. You don't forget your roots: The influence of CEO social class background on strategic risk taking. ***Academy of Management Journal***, 58(6): 1614-1636.

Koh, P.-S., & Reeb, D. M. 2015. Missing R&D. ***Journal of Accounting and Economics***, 60(1): 73-94.

Kor, Y. Y., & Leblebici, H. 2005. How do interdependencies among human-capital deployment, development, and diversification strategies affect firms' financial performance? ***Strategic Management Journal***, 26(10): 967-985.

Kothari, S. 2001. Capital markets research in accounting. ***Journal of Accounting and Economics***, 31(1-3): 105-231.

Kothari, S., Laguerre, T. E., & Leone, A. J. 2002. Capitalization versus expensing: Evidence on the uncertainty of future earnings from capital expenditures versus R&D outlays. ***Review of Accounting Studies***, 7(4): 355-382.

Kruse, T. A. 2002. Asset liquidity and the determinants of asset sales by poorly performing firms. ***Financial Management***: 107-129.

Lakonishok, J., & Vermaelen, T. 1990. Anomalous price behavior around repurchase tender offers. ***The Journal of Finance***, 45(2): 455-477.

Lamoureux, C. G., & Poon, P. 1987. The market reaction to stock splits. ***The Journal of Finance***, 42(5): 1347-1370.

Lang, L., Poulsen, A., & Stulz, R. 1995. Asset sales, firm performance, and the agency costs of managerial discretion. ***Journal of Financial Economics***, 37(1): 3-37.

Lang, M. H., Lins, K. V., & Miller, D. P. 2004. Concentrated control, analyst following, and valuation: Do analysts matter most when investors are protected least? ***Journal of Accounting Research***, 42(3): 589-623.

Lee, P. M., & James, E. H. 2007. She'-e-os: Gender effects and investor reactions to the announcements of top executive appointments. ***Strategic Management Journal***, 28(3): 227-241.

Lev, B. 1974. On the association between operating leverage and risk. ***Journal of Financial and Quantitative Analysis***, 9(4): 627-641.

Levitt, B., & March, J. G. 1988. Organizational learning. ***Annual review of sociology***, 14(1): 319-338.

Li, J., & Tang, Y. 2010. CEO hubris and firm risk taking in China: The moderating role of managerial discretion. ***Academy of Management Journal***, 53(1): 45-68.

Limbach, P., & Sonnenburg, F. 2014. CEO fitness and firm value. Unpublished Working Paper, Karlsruhe Institute of Technology and University of Cologne.

Lin, W.-T., & Liu, Y. 2012. Successor characteristics, organisational slack, and change in the degree of firm internationalisation. ***International Business Review***, 21(1): 89-101.

Linck, J. S., Netter, J. M., & Yang, T. 2008. The determinants of board structure. ***Journal of Financial Economics***, 87(2): 308-328.

Lonie, A. A., Abeyratna, G., Power, D. M., & Sinclair, C. D. 1996. The stock market reaction to dividend announcements: A UK study of complex market signals. ***Journal of Economic Studies***, 23(1): 32-52.

Low, A. 2009. Managerial risk-taking behavior and equity-based compensation. ***Journal of Financial Economics***, 92(3): 470-490.

Lubatkin, M. H., Chung, K. H., Rogers, R. C., & Owers, J. E. 1989. Stockholder reactions to CEO changes in large corporations. ***Academy of Management Journal***, 32(1): 47-68.

Maddux, W. W., & Galinsky, A. D. 2009. Cultural borders and mental barriers: the relationship between living abroad and creativity. ***Journal of Personality and Social Psychology***, 96(5): 1047-1061.

Malmendier, U., & Nagel, S. 2011. Depression babies: Do macroeconomic experiences affect risk taking? ***The Quarterly Journal of Economics***, 126(1): 373-416.

Malmendier, U., & Tate, G. 2005. CEO overconfidence and corporate investment. ***The Journal of Finance***, 60(6): 2661-2700.

Malmendier, U., & Tate, G. 2009. Superstar CEOs. ***The Quarterly Journal of Economics***, 124(4): 1593-1638.

Malmendier, U., Tate, G., & Yan, J. 2011. Overconfidence and early-life experiences: The effect of managerial traits on corporate financial policies. ***The Journal of Finance***, 66(5): 1687-1733.

Mandelker, G. N., & Rhee, S. G. 1984. The impact of the degrees of operating and financial leverage on systematic risk of common stock. ***Journal of Financial and Quantitative Analysis***, 19(1): 45-57.

March, J. G., & Shapira, Z. 1987. Managerial perspectives on risk and risk taking. ***Management Science***, 33(11): 1404-1418.

Martin, A. D., Nishikawa, T., & Williams, M. A. 2009. CEO gender: Effects on valuation and risk. ***Quarterly Journal of Finance & Accounting***, 48(3).

Matsa, D. A., & Miller, A. R. 2013. A female style in corporate leadership? Evidence from quotas. ***American Economic Journal***, 5(3): 136-169.

May, D. O. 1995. Do managerial motives influence firm risk reduction strategies? ***The Journal of Finance***, 50(4): 1291-1308.

Mazzucato, M., & Tancioni, M. 2008. Innovation and idiosyncratic risk: An industry-and firm-level analysis. ***Industrial and Corporate Change***, 17(4): 779-811.

McConnell, J. J., & Muscarella, C. J. 1985. Corporate capital expenditure decisions and the market value of the firm. ***Journal of Financial Economics***, 14(3): 399-422.

McConnell, J. J., & Nantell, T. J. 1985. Corporate combinations and common stock returns: The case of joint ventures. ***The Journal of Finance***, 40(2): 519-536.

McConnell, J. J., & Qi, Q. 2018. Does CEO succession planning create shareholder value? ***Available at SSRN: https://ssrn.com/abstract=3176648 or http://dx.doi.org/10.2139/ssrn.3176648***.

McNichols, M., & Dravid, A. 1990. Stock dividends, stock splits, and signaling. ***The Journal of Finance***, 45(3): 857-879.
Mehran, H. 1995. Executive compensation structure, ownership, and firm performance. ***Journal of Financial Economics***, 38(2): 163-184.
Merz, A., & Weidemann, J. F. 2018. What really matters in CEO succession? Evidence from sudden CEO deaths. Paper presented at the Academy of Management Proceedings.
Michaely, R., Thaler, R. H., & Womack, K. L. 1995. Price reactions to dividend initiations and omissions: Overreaction or drift? ***The Journal of Finance***, 50(2): 573-608.
Miller, D. 1991. Stale in the saddle: CEO tenure and the match between organization and environment. ***Management Science***, 37(1): 34-52.
Miller, D. 1993. Some organizational consequences of CEO succession. ***Academy of Management Journal***, 36(3): 644-659.
Mintzberg, H. 2004. ***Managers, not MBAs: A hard look at the soft practice of managing and management development***: Berrett-Koehler Publishers.
Mirrlees, J. A. 1976. The optimal structure of incentives and authority within an organization. ***The Bell Journal of Economics***: 105-131.
Mishra, D. R. 2014. The dark side of CEO ability: CEO general managerial skills and cost of equity capital. ***Journal of Corporate Finance***, 29: 390-409.
Mobbs, S., & Raheja, C. G. 2012. Internal managerial promotions: Insider incentives and CEO succession. ***Journal of Corporate Finance***, 18(5): 1337-1353.
Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. 2005. Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave. ***The Journal of Finance***, 60(2): 757-782.
Mowday, R. T., & Spencer, D. G. 1981. The influence of task and personality characteristics on employee turnover and absenteeism incidents. ***Academy of Management Journal***, 24(3): 634-642.
Mullins, W., & Schoar, A. 2016. How do CEOs see their roles? Management philosophies and styles in family and non-family firms. ***Journal of Financial Economics***, 119(1): 24-43.
Murphy, K. J., & Zimmerman, J. L. 1993. Financial performance surrounding CEO turnover. ***Journal of Accounting and Economics***, 16(1-3): 273-315.
Naveen, L. 2006. Organizational complexity and succession planning. ***Journal of Financial and Quantitative Analysis***, 41(3): 661-683.
Nelson, R. R. 1982. The Role of Knowledge in R&D Efficiency. ***The Quarterly Journal of Economics***, 97(3): 453-470.
Neuhierl, A., Scherbina, A., & Schlusche, B. 2013. Market reaction to corporate press releases. ***Journal of Financial and Quantitative Analysis***, 48(4): 1207-1240.
O'hara, M., & Shaw, W. 1990. Deposit insurance and wealth effects: the value of being "too big to fail". ***The Journal of Finance***, 45(5): 1587-1600.
Ocasio, W. 1994. Political dynamics and the circulation of power: CEO succession in US industrial corporations, 1960-1990. ***Administrative Science Quarterly***: 285-312.
Papadakis, V. M., & Barwise, P. 2002. How much do CEOs and top managers matter in strategic decision-making? ***British Journal of Management***, 13(1): 83-95.
Parrino, R. 1997. CEO turnover and outside succession A cross-sectional analysis. ***Journal of Financial Economics***, 46(2): 165-197.
Peng, L., & Xiong, W. 2006. Investor attention, overconfidence and category learning. ***Journal of Financial Economics***, 80(3): 563-602.
Pettus, M. L., Kor, Y. Y., & Mahoney, J. T. 2009. A theory of change in turbulent environments: The sequencing of dynamic capabilities following industry

deregulation. ***International Journal of Strategic Change Management***, 1(3): 186-211.

Pfeffer, J., & Salancik, G. R. 1978. ***The external control of organizations: A resource dependence approach***. NY: New York.

Prendergast, C., & Stole, L. 1996. Impetuous youngsters and jaded old-timers: Acquiring a reputation for learning. ***Journal of Political Economy***, 104(6): 1105-1134.

Queen, M., & Roll, R. 1987. Firm mortality: Using market indicators to predict survival. ***Financial Analysts Journal***, 43(3): 9-26.

Quigley, T. J., Crossland, C., & Campbell, R. J. 2017. Shareholder perceptions of the changing impact of CEOs: Market reactions to unexpected CEO deaths, 1950–2009. ***Strategic Management Journal***, 38(4): 939-949.

Quigley, T. J., & Hambrick, D. C. 2012. When the former CEO stays on as board chair: Effects on successor discretion, strategic change, and performance. ***Strategic Management Journal***, 33(7): 834-859.

Reinganum, M. R. 1985. The effect of executive succession on stockholder wealth. ***Administrative Science Quarterly***: 46-60.

Reskin, B. F., & McBrier, D. B. 2000. Why not ascription? Organizations' employment of male and female managers. ***American Sociological Review***, 65(2): 210-233.

Rhim, J. C., Peluchette, J. V., & Song, I. 2006. Stock market reactions and firm performance surrounding CEO succession: Antecedents of succession and successor origin. ***American Journal of Business***, 21(1): 21-30.

Ritter, J. R., & Welch, I. 2002. A review of IPO activity, pricing, and allocations. ***The Journal of Finance***, 57(4): 1795-1828.

Rivolta, M. L. 2018. Worth the wait? Delay in CEO succession after unplanned CEO departures. ***Journal of Corporate Finance***, 49: 225-251.

Rowe, W. G., Cannella Jr, A. A., Rankin, D., & Gorman, D. 2005. Leader succession and organizational performance: Integrating the common-sense, ritual scapegoating, and vicious-circle succession theories. ***The Leadership Quarterly***, 16(2): 197-219.

Rubin, R. S., & Dierdorff, E. C. 2009. How relevant is the MBA? Assessing the alignment of required curricula and required managerial competencies. ***Academy of Management Learning & Education***, 8(2): 208-224.

Rubinstein, M. E. 1973. A mean-variance synthesis of corporate financial theory. ***The Journal of Finance***, 28(1): 167-181.

Ryan, M. K., & Haslam, S. A. 2005. The glass cliff: Evidence that women are over-represented in precarious leadership positions. ***British Journal of Management***, 16(2): 81-90.

Salas, J. M. 2010. Entrenchment, governance, and the stock price reaction to sudden executive deaths. ***Journal of Banking & Finance***, 34(3): 656-666.

Samuelson, B. A., Galbraith, C. S., & McGuire, J. W. 1985. Organizational performance and top-management turnover. ***Organization Studies***, 6(3): 275-291.

Sastry, M. A. 1997. Problems and paradoxes in a model of punctuated organizational change. ***Administrative Science Quarterly***, 42(2): 237-275.

Schepker, D. J., Kim, Y., Patel, P. C., Thatcher, S. M., & Campion, M. C. 2017. CEO succession, strategic change, and post-succession performance: A meta-analysis. ***The Leadership Quarterly***, 28(6): 701-720.

Schepker, D. J., Nyberg, A. J., Ulrich, M. D., & Wright, P. M. 2018. Planning for future leadership: Procedural rationality, formalized succession processes, and CEO influence in CEO succession planning. ***Academy of Management Journal***, 61(2): 523-552.

Schipper, K., & Smith, A. 1983. Effects of recontracting on shareholder wealth: The case of voluntary spin-offs. ***Journal of Financial Economics***, 12(4): 437-467.

Schwartz, K. B., & Menon, K. 1985. Executive succession in failing firms. ***Academy of Management Journal***, 28(3): 680-686.

Serfling, M. A. 2014. CEO age and the riskiness of corporate policies. ***Journal of Corporate Finance***, 25: 251-273.

Shen, W., & Cannella, A. A. 2002. Revisiting the performance consequences of CEO succession: The impacts of successor type, postsuccession senior executive turnover, and departing CEO tenure. ***Academy of Management Journal***, 45(4): 717-733.

Shen, W., & Cannella Jr, A. A. 2003. Will succession planning increase shareholder wealth? Evidence from investor reactions to relay CEO successions. ***Strategic Management Journal***, 24(2): 191-198.

Shleifer, A., & Vishny, R. W. 1986. Large shareholders and corporate control. ***Journal of Political Economy***, 94(3, Part 1): 461-488.

Shyam-Sunder, L. 1991. The stock price effect of risky versus safe debt. ***Journal of Financial and Quantitative Analysis***, 26(4): 549-558.

Singh, J. V., House, R. J., & Tucker, D. J. 1986. Organizational change and organizational mortality. ***Administrative Science Quarterly***, 31(4): 587-611.

Sitthipongpanich, T., & Polsiri, P. 2015. Do CEO and board characteristics matter? A study of Thai family firms. ***Journal of Family Business Strategy***, 6(2): 119-129.

Skaggs, S. 2009. Legal-political pressures and African American access to managerial jobs. ***American Sociological Review***, 74(2): 225-244.

Smith Jr, C. W. 1986. Investment banking and the capital acquisition process. ***Journal of Financial Economics***, 15(1-2): 3-29.

Stinchcombe, A. L. 1965. ***Organizations and social structure***. Chicago Rand McNally & Co.

Sunder, J., Sunder, S. V., & Zhang, J. 2017. Pilot CEOs and corporate innovation. ***Journal of Financial Economics***, 123(1): 209-224.

Tadmor, C., Galinsky, A., & Maddux, W. 2009. Biculturalism: Dual identification with home and host cultures predicts creative and professional performance. Unpublished Working Paper, Tel Aviv University, Northwestern University and INSEAD.

Tang, Y., Qian, C., Chen, G., & Shen, R. 2015. How CEO hubris affects corporate social (ir) responsibility. ***Strategic Management Journal***, 36(9): 1338-1357.

Taylor, R. N. 1975. Age and experience as determinants of managerial information processing and decision making performance. ***Academy of Management Journal***, 18(1): 74-81.

Taylor, R. N., & Dunnette, M. D. 1974. Relative contribution of decision-maker attributes to decision processes. ***Organizational Behavior and Human Performance***, 12(2): 286-298.

Tian, J., Haleblian, J., & Rajagopalan, N. 2011. The effects of board human and social capital on investor reactions to new CEO selection. ***Strategic Management Journal***, 32(7): 731-747.

Tyler, B. B., & Steensma, H. K. 1998. The effects of executives' experiences and perceptions on their assessment of potential technological alliances. ***Strategic Management Journal***: 939-965.

Vega, C. 2006. Stock price reaction to public and private information. ***Journal of Financial Economics***, 82(1): 103-133.

Veld, C., & Veld-Merkoulova, Y. V. 2009. Value creation through spin-offs: A review of the empirical evidence. ***International Journal of Management Reviews***, 11(4): 407-420.

Warner, J. B., Watts, R. L., & Wruck, K. H. 1988. Stock prices and top management changes. ***Journal of financial Economics***, 20: 461-492.

Weisbach, M. S. 1988. Outside directors and CEO turnover. ***Journal of financial Economics***, 20: 431-460.

Weisbach, M. S. 1995. CEO turnover and the firm's investment decisions. ***Journal of Financial Economics***, 37(2): 159-188.

Weng, D. H., & Lin, Z. 2014. Beyond CEO tenure: The effect of CEO newness on strategic changes. ***Journal of Management***, 40(7): 2009-2032.

Westphal, J. D., & Fredrickson, J. W. 2001. Who directs strategic change? Director experience, the selection of new CEOs, and change in corporate strategy. ***Strategic Management Journal***, 22(12): 1113-1137.

Westphal, J. D., & Zajac, E. J. 1995. Who shall govern? CEO/ board power, demographic similarity, and new director selection. ***Administrative Science Quarterly***, 40(1): 60-83.

White, M. C., Smith, M., & Barnett, T. 1997. CEO succession: Overcoming forces of inertia. ***Human Relations***, 50(7): 805-828.

Wolfers, J. 2006. Diagnosing discrimination: Stock returns and CEO gender. ***Journal of the European Economic Association***, 4(2-3): 531-541.

Woolridge, J. R., & Snow, C. C. 1990. Stock market reaction to strategic investment decisions. ***Strategic Management Journal***, 11(5): 353-363.

Worrell, D. L., & Davidson III, W. N. 1987. The effect of CEO succession on stockholder wealth in large firms following the death of the predecessor. ***Journal of Management***, 13(3): 509-515.

Worrell, D. L., Davidson III, W. N., Chandy, P., & Garrison, S. L. 1986. Management turnover through deaths of key executives: Effects on investor wealth. ***Academy of Management Journal***, 29(4): 674-694.

Wright, P., Kroll, M., & Elenkov, D. 2002. Acquisition returns, increase in firm size, and chief executive officer compensation: The moderating role of monitoring. ***Academy of Management Journal***, 45(3): 599-608.

Yang, L. 2008. The real determinants of asset sales. ***The Journal of Finance***, 63(5): 2231-2262.

Yoon, P. S., & Starks, L. T. 1995. Signaling, investment opportunities, and dividend announcements. ***The Review of Financial Studies***, 8(4): 995-1018.

Zajac, E. J., & Kraatz, M. S. 1993. A diametric forces model of strategic change: Assessing the antecedents and consequences of restructuring in the higher education industry. ***Strategic Management Journal***, 14(S1): 83-102.

Zajac, E. J., & Westphal, J. D. 1996. Who shall succeed? How CEO/ board preferences and power affect the choice of new CEOs. ***Academy of Management Journal***, 39(1): 64-90.

Zhang, Y., & Rajagopalan, N. 2004. When the known devil is better than an unknown god: An empirical study of the antecedents and consequences of relay CEO successions. ***Academy of Management Journal***, 47(4): 483-500.

Zhang, Y., & Rajagopalan, N. 2010. Once an outsider, always an outsider? CEO origin, strategic change, and firm performance. ***Strategic Management Journal***, 31(3): 334-346.

Zhu, D. H., & Shen, W. 2016. Why do some outside successions fare better than others? The role of outside CEOs' prior experience with board diversity. ***Strategic Management Journal***, 37(13): 2695-2708.

Zwiebel, J. 1995. Corporate conservatism and relative compensation. ***Journal of Political Economy***, 103(1): 1-25.